BRITISH DENTAL JOURNAL

VOL. XCI, No. 6 SEPTEMBER 18, 1951

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September 18, 1951

BRITISH DENTAL JOURNAL

The Journal of the British Dental Association

(Incorporating the "Mouth Mirror" and the "Dental Gazette")

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Orders and remittances for advertisements must reach the Journal Manager, at 13, Hill Street, Berkeley Square, London, W.1, at least 11 days before publication date. **Advertisements cannot be accepted by telephone.**

Replies to Box Numbers should be addressed Box No.—c/o B.D.J., 13, Hill Street, Berkeley Square, London, W.1. A Box Number is used in place of name and address to conceal identity of advertiser. **In no circumstances will this information be divulged by this office. Telephone messages for transmission to advertisers under Box Numbers cannot be accepted.**

Members are requested before applying for any public dental appointments advertised in the lay Press to communicate with The Secretary, 13, Hill Street, Berkeley Square, London, W.1.

SCHOLARSHIP

GIBBS Travelling Scholarship. A TRAVELLING SCHOLARSHIP to the value of £300 is offered by D. & W. Gibbs Ltd., for a three months' tour of Scandinavia to study dental health education. Candidates must be both resident in and hold a registrable dental qualification in the United Kingdom. They are required to write a thesis of not more than 3,000 words on "Dental Health Education for the Public as a factor in Preventive Dentistry." Applications must be received by September 30, and the thesis completed by December 31, 1951. Further particulars and application forms may be obtained from the Hon. Secretary, Gibbs Travelling Scholarship Committee, British Society of Periodontology, 53, Portland Place, W.1.

LECTURES

FACULTY of Dental Surgery (Royal College of Surgeons of England) and Institute of Dental Surgery (University of London). A course of lectures and clinical demonstrations in GENERAL, ORAL and DENTAL SURGERY has been arranged jointly between the Faculty of Dental Surgery and the Institute of Dental Surgery, to take place from Monday, October 22—Friday, November 30, 1951. The lectures will be given at the Royal College of Surgeons of England, and the clinical demonstrations will be held at various London Hospitals. Fees: Whole course, £26 5s.; Lecture course only, £8 8s. For further details apply to Mr. W. F. Davis, Secretary, Faculty of Dental Surgery, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2. (HOL 3474). W. F. Davis, Secretary, Faculty of Dental Surgery.

POST-GRADUATE COURSE

INSTITUTE of Dental Surgery (University of London) Eastman Dental Hospital, Gray's Inn Road, London, W.C.1. A post-graduate full-time course of six weeks' duration, intended primarily for candidates preparing for the Final Examination of the F.D.S. R.C.S., will commence on October 22, 1951. In addition to lectures and clinical demonstrations at the Eastman Dental Hospital, which will cover all aspects of dental surgery, the course will include a course of twenty-two lectures arranged by the Faculty of Dental Surgery of the Royal College of Surgeons, clinical lectures and demonstrations at the Whittington Hospital on the general principles of surgery and medicine and four sessions at maxillo-facial units. The fee for the course will be £26 5s. Applications should be made to the Dean from whom further particulars may be obtained.

PUBLIC APPOINTMENTS

EASTMAN Dental Hospital and Institute of Dental Surgery (University of London), Gray's Inn Road, W.C.1. Applications are invited for the post of SENIOR HOSPITAL DENTAL OFFICER (Non-Resident) in the DEPARTMENT of CHILDREN'S DENTISTRY. Remuneration in accordance with the terms and conditions of service of Hospital Medical and Dental Officers for the time being in operation. Canvassing will lead to disqualification, but candidates are invited to visit the hospital by appointment. Full particulars and application forms obtainable from The Director, to whom application should be made before October 2, 1951.

UNIVERSITY of Birmingham. Faculty of Medicine. School of Dental Surgery. Applications are invited for the appointment of a whole-time LECTURER in OPERATIVE DENTAL SURGERY (Grade II—clinical). Salary scale up to £1,500 according to age and experience. F.S.S.U. and family allowance. Duties to include clinical teaching at the Dental Hospital, with facilities for research, and to undertake duties in the Dental Surgery at the University Health Centre. Applications, with the names of three referees, should be received by the undersigned, from whom further particulars may be obtained, not later than September 30, 1951. C. G. Burton, Secretary. The University, Birmingham 3. August, 1951.

GUY'S Hospital. The Board of Governors of Guy's Hospital invite applications from registered Dental Practitioners for the appointment of REGISTRAR in the DEPARTMENT of PREVENTIVE DENTISTRY with attendance on 6 sessions per week to commence duties on November 1, 1951. Salary will be at the rate of £775 per annum in the first year and the post will be subject to the Terms and Conditions of Service of Hospital Medical and Dental Staff in the National Health Service. Forms of application are obtainable from the Superintendent, Guy's Hospital, London, S.E.1, to whom applications with the names of three referees should be sent not later than October 12, 1951.

UNIVERSITY of Bristol Dental Hospital. United Bristol Hospitals. Applications are invited for the post of REGISTRAR in DENTAL SURGERY. The appointment will be whole-time and the candidate appointed may also be required to perform duties in other Hospitals of the Group. The salary and terms and conditions of service will be as negotiated between the Minister of Health and the profession, and the post will be subject to the National Health Service Superannuation Regulations. The appointment will be for a period of one year in the first instance, and will be renewable for a further period of one year. Applications, stating full christian names, age, education, qualifications and experience, and giving the names of two referees should be sent to Secretary to the Board, Bristol Royal Infirmary, Bristol, 2.

MANCHESTER Regional Hospital Board invite applications for the post of NON-RESIDENT REGISTRAR in DENTAL SURGERY for duty in the Bolton, Bury and Blackburn areas. A higher qualification in dental surgery would be an advantage. Forms of application may be obtained from the Senior Administrative Medical Officer, No. 1, North Parade, Parsonage Gardens, Manchester, and should be returned, with the names of two referees or copies of two recent testimonials, to be received by October 1, 1951.

NORTH-WEST Metropolitan Regional Hospital Board, Plastic and Jaw Unit, Hill End Hospital, St. Albans, DENTAL REGISTRAR required. All types of fracture, maxillo-facial and oral surgical cases are treated, and facilities are available for working for the F.D.S. examination. Whole-time appointment, subject to confirmation at the end of six months. The successful applicant must be resident or live within easy access of the hospital. Post vacant end of November 1951. Application forms obtainable from and returnable to the Secretary, Mid-Herts Group Hospital Management Committee, Osterhills, Normandy Road, St. Albans, by September 29, 1951.

ROYAL Dental Hospital of London School of Dental Surgery (University of London), Leicester Square, W.C.2. Applications are invited for the posts of (a) DEMONSTRATOR in OPERATIVE DENTAL SURGERY, 2 or more sessions weekly; (b) DEMONSTRATOR in advanced OPERATIVE DENTAL TECHNIQUE; (c) DEMONSTRATOR in OPERATIVE DENTAL SURGERY (phantom head class), 3-5 sessions weekly. Salary on the scale £210 x £20—£270 p.a. for 2 sessions to £720 x £60—£900 p.a. for 6 sessions. Morning sessions commence at 9 a.m.; afternoon sessions at 2 p.m. Appointments are subject to annual re-election. Candidates, who must possess a registrable dental qualification, should forward 6 copies of their application together with the names of 3 referees to the Dean.

THE London Hospital Dental School. Applications are invited for the post of PART-TIME DEMONSTRATOR in the Department of PROSTHETIC DENTISTRY. The appointment will be for one year renewable up to a maximum of three years. Initial salary according to experience and qualifications on a scale £75/£150 per weekly session per annum. Minimum attendance three sessions per week. Candidates should state if there are any days on which they cannot attend and give full particulars of previous experience and qualifications. Applications (four copies), together with the names of two referees, should be forwarded to the Secretary, The London Hospital Medical College, Turner Street, E.1, not later than fourteen days after the appearance of this advertisement.

UNITED Bristol Hospitals, University of Bristol Dental Hospital. Applications are invited from registered Dental Practitioners for three posts of non-resident HOUSE SURGEON in the University of Bristol Dental Hospital. The appointments will be for a period of six months and are vacant immediately. Salary and conditions of service will be in accordance with those laid down by the Ministry of Health, i.e., £350 for the first post, £400 for the second post and £450 for the third and subsequent posts. Applications on forms to be obtained from the undersigned should be sent immediately to Secretary to the Board, Royal Infirmary Branch, Bristol, 2.

DUNDEE Dental Hospital. Applications are invited from Graduates or Licentiates in Dental Surgery for the whole-time non-resident appointment of HOUSE SURGEON. The salary will be at the rate of £350 per annum and the appointment will be subject to terms and conditions of service of Hospital Medical and Dental Staff. This is a teaching Hospital of the University of St. Andrews and these appointments are recognised for the F.D.S. qualification. Applications should be forwarded with full particulars to the Dean, Dundee Dental Hospital, Dundee, from whom further particulars may be obtained.

LANCASHIRE County Council. SENIOR DENTAL OFFICER. Applications invited from registered Dental Surgeons. The duties will be mainly concerned with the organisation of the School Dental Service and applicants should have had experience in the administration of dental schemes. Salary £1,400 x £75—£1,700. Subsistence allowances and travelling expenses payable where applicable. The position is superannuable and subject to passing a medical examination. Full particulars and application forms from County Medical Officer, East Cliff County Offices, Preston, to be returned by October 8.

COUNTY Borough of Doncaster. Appointment of Senior Dental Officer. Applications are invited from Dental Surgeons for the post of SENIOR DENTAL OFFICER. The person appointed will be responsible to the Medical Officer of Health and School Medical Officer for all dental services undertaken by the Education and Health Committees and, in addition to administrative duties, will perform such clinical duties as the Medical Officer of Health and School Medical Officer may require, e.g., the dental inspection and treatment of school children and dental work in connection with mothers and young children under the National Health Service Act, 1946. Salary in accordance with the scale of the Dental Whitley Council (Local Authorities), £1,250 per annum rising by one increment of £50 to a maximum of £1,300. The appointment is superannuable, and the successful candidate will be required to pass a medical examination. He or she will be appointed to the staff of the School Medical Officer. Further particulars may be obtained from the Medical Officer of Health and School Medical Officer, Health Offices, Wood Street, Doncaster, to whom applications should be made not later than first post September 25, 1951. H. S. Essenhigh, Town Clerk. Town Clerk's Office, 1, Priory Place, Doncaster.

COUNTY Borough of Ipswich. Public Health Department. Appointment of SENIOR DENTAL SURGEON. Applications are invited from registered Dental Surgeons for the above appointment. The duties attached to the post will include the dental inspection and treatment of school children and pre-school children, and adults under the Maternity and Child Welfare Scheme. The salary will be at the rate of £1,250 per annum rising by annual increments of £50 to a maximum of £1,350 per annum, placing being given in respect of experience with a Local Authority. The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination. Canvassing directly or indirectly will be a disqualification. Application forms may be obtained from the Medical Officer of Health, Public Health Department, Elm Street, Ipswich, and should be returned not later than two weeks after the appearance of this advertisement. J. C. Nelson, Town Clerk. Town Hall, Ipswich. September 4, 1951.

WORCESTERSHIRE County Council. School Dental Service. Applications are invited from registered Dental Surgeons for appointment as DIVISIONAL DENTAL OFFICER for the Oldbury Divisional area. Salary £850 per annum by £50 to £1,300 per annum; commencing salary to depend upon previous experience. The Officer appointed will work under the direction of the Divisional Medical Officer and supervision by the Chief Dental Officer. Forms of application obtainable from the County Medical Officer, County Buildings, Worcester, should be returned to him by October 20, 1951. (T.33)

BEDFORDSHIRE County Council—vacancies for DENTAL OFFICERS. Applications are invited. Salary on the recent Whitley Council Scale according to experience, with travelling and subsistence allowances. Duties mainly in connection with School Health and Maternity and Child Welfare Services. Applications on forms from County M.O.H., should be received within 21 days from date of this advertisement.

CITY of Birmingham Education Committee. School Health Service. Appointment of three SCHOOL DENTAL SURGEONS. Applications are invited from Dental Surgeons (male or female) for full-time appointment in the School Health Service. Salary £800, rising by annual increments of £50 to £1,250. The commencing salary will be fixed at a point on the scale according to experience. Further particulars and form of application may be obtained on receipt of a stamped addressed foolscap envelope. Completed applications should be returned by October 20. Canvassing will disqualify. E. L. Russell, Chief Education Officer. Education Office, 74/5, Broad Street, Birmingham, 15. September 7, 1951.

DEVON County Council. Applications are invited from registered Dental Surgeons for the appointments of COUNTY DENTAL OFFICERS at Barnstaple, Tavistock, Holsworthy, Exmouth, Totnes, Sidmouth and Kingsbridge. Salary and Conditions of Service in accordance with the recommendations of the Dental Whitley Council (viz. within range £800 to £1,250 per annum). The successful candidate will be required to pass a medical examination and to contribute to the Council's Superannuation Fund. Canvassing, either directly or indirectly, will be a disqualification. Forms of application and full particulars of duties can be obtained from the County Medical Officer, 45, St. David's Hill, Exeter to be returned to him by not later than 14 days after the appearance of this advertisement. H. A. Davis, Clerk of the Council.

COUNTY Borough of Doncaster. ASSISTANT DENTAL OFFICER. Applications are invited from registered Dental Surgeons for the above whole-time appointment. In addition to the dental inspection and treatment of school children, the duties will include dental work in connection with mothers and young children under the National Health Service Act, 1946. Salary in accordance with the scale of the Dental Whitley Council (Local Authorities), £800 per annum rising by annual increments of £50 to a maximum of £1,250 per annum. The appointment is superannuable, and the successful candidate will be required to pass a medical examination. The successful applicant will be appointed to the staff of the School Medical Officer and will work under the supervision of the Senior Dental Officer. Further information may be obtained from the Medical Officer of Health and School Medical Officer, Health Offices, Wood Street, Doncaster, to whom applications should be sent not later than first post September 25, 1951. H. S. Essenhigh, Town Clerk. Town Clerk's Office, 1, Priory Place, Doncaster.

FERMANAGH County Health Committee. Applications are invited from registered Dental Surgeons for the posts of:—1. CHIEF DENTAL OFFICER at a salary of £1,250 rising by one annual increment to £1,300 per annum. The person appointed to this position will be responsible for the administration of the dental services provided by the Committee and will work under the direction of the County Medical Officer. In addition to his administrative duties he must be prepared to undertake such work in dental clinics, including that in an Ash's Mobile Clinic, as may be required and be responsible for supervising the work of assistant dental officers. Applicants must have had at least five years' experience in the School Health Service, experience in orthodontia and dental X-ray work is also essential; 2. DENTAL OFFICER at a salary of £800 rising by annual increments of £50 to £1,250 per annum. The commencing point on the scale will be appropriate to the qualifications, experience and length of service of the person appointed. Travelling expenses for both positions will be payable in accordance with scales approved from time to time by the Committee. The appointments are subject to deductions for super-

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annuation in accordance with the Local Government (Superannuation) Act (N.I.), 1950; to the terms of an agreement to be entered into as to conditions of employment; and to the successful candidates' passing a medical examination. Superannuation arrangements are reciprocal between Gt. Britain and Northern Ireland. Preference will be given to ex-Service candidates with the necessary qualifications and also to candidates with most graduate experience in a registered dental hospital or similar institution. Applications, stating age, qualifications and experience together with copies of not more than three testimonials should be forwarded to the undersigned so as to be received not later than Saturday, September 29, 1951. John Brown, Secretary. County Health Offices, Castle Barracks, Enniskillen, N. Ireland. August 17, 1951.

CITY and County of the City of Exeter. ASSISTANT DENTAL OFFICER. The Education Committee invite applications from registered Dental Surgeons for the above whole-time appointment. In addition to the dental inspection and treatment of school children, the duties will include dental work in connection with mothers and young children under the National Health Service Act, 1946. Salary in accordance with the Whitley Council scale, viz., £800 per annum rising by annual increments of £50 to £1,250 per annum, with consideration for previous experience. The appointment is superannuable, and the successful candidate will be required to pass a medical examination. Application forms and further information may be obtained from the Medical Officer of Health, 5, Southernhay West, Exeter, with whom completed applications should be lodged as soon as possible, but not later than October 6, 1951. C. J. Newman, Town Clerk. 10, Southernhay West, Exeter.

FIFE County Council. Health and Welfare Department. Applications are invited from Dental Surgeons for appointment as DENTAL OFFICERS in the County Dental Scheme. A house will be made available in certain areas. Salary (£800 rising by annual increments of £50 to a maximum of £1,250 per annum) with placing in accordance with the Dental Whitley Council (Local Authorities) Scale. Duties will consist mainly of inspection and treatment of school children and the dental treatment of expectant and nursing mothers and pre-school children. Applications, stating age, qualifications and experience, with copies of three recent testimonials to be lodged with the Medical Officer of Health, County Buildings, Cupar, Fife, within fourteen days of the appearance of this advertisement. J. M. Mitchell, County Clerk, County Buildings, Cupar. August 31, 1951.

HAMPSHIRE. Appointment of ASSISTANT COUNTY DENTAL OFFICERS. Applications are invited from registered Dental Surgeons (men or women) for the above positions on the staff of the County Medical Officer in the following areas: Alton, Andover, Basingstoke, Eastleigh (two), Fareham, Gosport (two), Totton and Waterlooville. Modern dental equipment, including dental units, is available in the Central Clinics in these areas. Permanent dental equipment is provided for subsidiary clinics and where required mobile dental caravans are available. The salary scale is in accordance with the recent Whitley Award, i.e. £800 per annum rising by annual increments to £1,250. A travelling and subsistence allowance will be paid on the National Scale adopted by the County Council. The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937. Forms of application with particulars of the appointment may be obtained from the County Medical Officer, The Castle, Winchester, Hants, and should be returned to him not later than September 29, 1951. G. A. Wheatley, Clerk of the County Council. The Castle, Winchester. September, 1951.

CITY of Liverpool, School Health Service. Applications are invited for the appointment of ASSISTANT SCHOOL DENTAL OFFICERS. Salary £800 x £50 to £1,250 per annum (Whitley Scale). Applicants should be Dental Surgeons. Previous local authority service or experience in practice may be taken into consideration in fixing the commencing salary. Application forms, obtainable from the School Medical Officer, Municipal Annexe, Dale Street, Liverpool, 2, should be returned to the undersigned, together with copies of three recent testimonials, by September 29, 1951, in envelopes endorsed "Assistant School Dental Officer." The appointments are superannuable and subject to the Standing Orders of the City Council. Canvassing disqualifies. Thomas Alker, Town Clerk and Clerk to the Local Education Authority, Municipal Buildings, Liverpool, 2. August, 1951. (2703)

THE London County Council invites applications from registered Dental Practitioners with a degree or diploma in dental surgery for appointment as whole-time DENTAL OFFICERS in Public Health Department; salary scale £800 x £50—£1,250, commencing salary dependent on experience offered. Apply to Medical Officer of Health (PH/D.1), the County Hall, Westminster Bridge, London, S.E.1. (834.)

MIDDLESEX County Council, County Health Department. DENTAL OFFICERS, registered Dental Surgeons, whole-time (part-time considered), required initially in Area 10 (Twickenham, Feltham, Staines and Sunbury). Duties include inspection and treatment of mothers and young children and School Dental Service. Private practice not allowed. Salary scale £800 x £50—£1,250 p.a. inclusive. Part-time officers working six or more sessions per week paid on a pro rata basis of this salary. Previous experience may determine commencing salary as Whitley Council recommendations. Established, pensionable, subject to medical assessment and prescribed conditions. Applications stating age, qualifications, experience, two referees to Area Medical Officer, Elmfield House, High Street, Teddington, Middlesex by October 2 (quoting *J.836, B.D.J.*). Canvassing disqualifies. C. W. Radcliffe, Clerk of the County Council.

MIDDLESEX County Council, County Health Department. DENTAL OFFICER. Registered Dental Surgeon required initially in Area 6 (Wembley and Willesden). Whole-time duties include inspection and treatment of mothers and young children and School Dental Service. Private practice not allowed. Salary scale £800 x £50 to £1,250 per annum inclusive. Previous experience may determine commencing salary in accordance with Whitley Council recommendations. Established subject to medical assessment and prescribed conditions. Applications, stating age, qualifications, experience, 2 referees to Joint Area Medical Officer, 54, Winchester Avenue, Kilburn, N.W.6, by October 2, (quoting *J.821, B.D.J.*). Canvassing disqualifies. C. W. Radcliffe, Clerk of the County Council.

CITY of Portsmouth Education Committee. Appointment of Assistant Dental Officer. The Committee invite applications from men and women candidates for the whole-time appointment as ASSISTANT DENTAL OFFICER. Salary will be in accordance with the Dental Whitley Council's (Local Authorities) Salary Award. The commencing salary will be fixed according to experience. Forms of application may be obtained from the Chief Education Officer, Municipal Offices, 1, Western Parade, Portsmouth, to whom they should be returned not later than 14 days after the appearance of this advertisement. Canvassing in any form will be a disqualification. V. Blanchard, Town Clerk to the Education Committee.

COUNTY Borough of Wallasey. Appointment of Dental Officer. Applications are invited from registered practitioners for the post of DENTAL OFFICER. Salary £800 x £50—£1,250 per annum—commencing salary according to previous experience. The successful candidate will be required to devote the whole of his time to the work of the Authority, which will include dentistry for the School Health and the Maternity and Child Welfare Services. The duties will be carried out under the supervision of the Senior Dental Officer and the Medical Officer of Health. The appointment is subject to medical examination and to the provisions of the Local Government Superannuation Act, 1937, as modified by the National Health Service (Superannuation) Regulations, 1947. Applications, with copies of three recent testimonials, or the names of three referees, to: The Medical Officer of Health, Town Hall, Wallasey. A. G. Harrison, Town Clerk.

WILTSHIRE County Council. Appointment of Assistant County Dental Officers. Applications are invited from Dental Surgeons for the appointments of ASSISTANT COUNTY DENTAL OFFICER for the Marlborough and Warminster areas respectively. Salary Scale £800 x £50—£1,250 per annum. Conditions of service in accordance with the Dental Whitley Council (Local Authorities) of the Whitley Councils for the Health Services. Travelling and subsistence allowances in accordance with National Scale. The appointments are superannuable, subject to medical examination. Forms of application may be obtained from the undersigned. P. A. Selborne Stringer, Clerk of the Council. County Hall, Trowbridge. August 1951.

WORCESTERSHIRE County Council. School Dental Service. Applications are invited from registered Dental Surgeons for appointment as DENTAL OFFICERS in (1) Malvern, (2) Bewdley-Kidderminster, (3) Halesowen, (4) Redditch. Salary £800 per annum by £50 to £1,250 per annum, commencing salary to depend upon previous experience. Travelling and subsistence allowance in accordance with the National Joint Council Scale. The Officer appointed will work under the direction of the County Medical Officer and supervision by the Chief Dental Officer. Forms of application obtainable from the County Medical Officer, County Buildings, Worcester, should be returned to him by October 20, 1951. (T.34)

COUNTY Council of the North Riding of Yorkshire. Education Committee. Applications are invited from Dental Surgeons for appointment as SCHOOL DENTAL OFFICERS. In addition to the dental inspection and treatment of school children, officers appointed will be required to undertake some work for the County Health Committee for mothers and young children under the National Health Service Act, 1946. Several fixed clinics fitted with modern equipment have recently been established and two modern fitted caravans are available for work in rural parts. For two areas a car is not essential. Salary will be at the rate of £800 x £50—£1,250 according to experience and qualifications. Applications giving age, qualifications and experience, together with the names of two referees, should be forwarded to the undersigned within fourteen days of the appearance of this advertisement. F. Barraclough, Secretary for Education. Education Offices, County Hall, Northallerton. September 1951.

THE University of Manchester. An INSTRUCTOR in DENTAL MECHANICS is required by the Turner Dental School. Salary within the Whitley Council Chief Technicians' Scale, with membership of a Superannuation Scheme and Family Allowances. Duties to commence as soon as possible. Applications should be sent to Professor E. Matthews, The Turner Dental School, Bridge Street, Manchester, 15

SENIOR DENTAL TECHNICIAN required at Barnet General Hospital. Whitley Council salary scale £400 x £15 to £490 p.a. plus London Weighting (£30 if 26 years of age or over). Superannuable subject to medical examination. Applications stating age, qualifications and experience together with copies of three testimonials to be sent to Medical Director, Barnet General Hospital, Wellhouse Lane, Barnet, Herts, to reach him by September 20, 1951.

PRACTICES

Available

FOR Sale privately, old established Dentist's practice in populous working class district of Glasgow; strong National Health Scheme connection; house available to let; good opportunity for young man. For further particulars and cards to view, apply to MacFarlane, Young & Co., Solicitors, 3, High Street, Paisley. Tel.: PAI 3257/8/9.

FOR Sale. Old established practice. Turnover £3,500/£4,000 yearly. Detached residence, main road position, 20 miles London (Bucks), comprising: 3 public, 5 bedrooms, lounge, cloakroom, bathroom, 3 w.c.'s, etc., equipped surgery (at valuation), 2 fully equipped workshops, good stock, garage, large secluded garden. All main supplies. Price £6,800 (mortgage for half can be arranged). Owner retiring. Near offers considered. —Box 1001.

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B.D.S. seeks practice or partnership, or assistantship with view. Southern England preferred.—Box 1045.

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Recent examination of Amm-i-dent children shows rate of caries development still on decrease

THE Public Health Department of the Corporation of Glasgow has just made available the most recent findings on its investigation of the new ammonium urea dentifrice—Amm-i-dent. All evidence points that the rate of caries development, in the teeth of a test group of 30 children, is still on the decrease after eighteen months!

Children under strict routine

As previously reported, the investigation was begun in September, 1949. At that time 60 children were selected from Glasgow nursery schools. Thirty of the children were supplied with the ammoniated urea dentifrice — Amm-i-dent. The other thirty were given ordinary dentifrices. All children followed the same strict routine of diet and brushing. All examinations were closely supervised and tabulated with the utmost care. The same children were used throughout!

FIG. B.—These Glasgow test-tots, under strict supervision from the time they arrive at school until they leave for home, are brushing their teeth with the new ammoniated urea dentifrice.

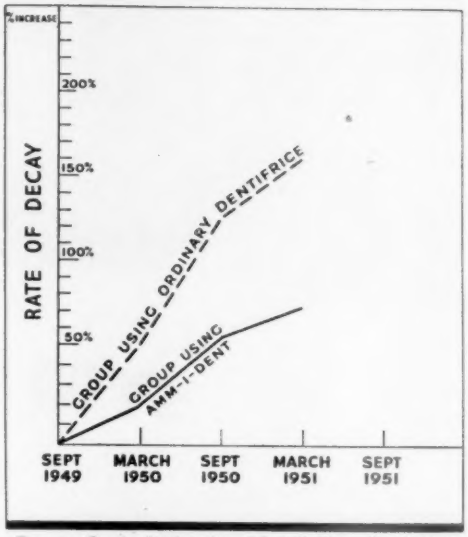

FIG. A.—Graph showing Amm-i-dent findings after eighteen months' investigation.

Latest examination shows greater success

The first examination took place in March, 1950, six months after the test was commenced. At that time the rate of caries development registered 18% among the test children as against 30% in the control group. By the second examination in September, 1950, this gap had widened even further. And the most recent figures—resulting from the March, 1951, examination—reveal a ratio of 71% to 161% (see chart). This is a significant victory for Amm-i-dent and the ammonium urea formula.

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Face first matter

BRITISH DENTAL JOURNAL

The Journal of the British Dental Association

VOL. XCI SEPTEMBER 18, 1951 No. 6

ORIGINAL COMMUNICATIONS

THE ORGANISATION OF THE ORO-FACIAL MUSCLES IN RELATION TO BREATHING AND FEEDING[1]

BY E. GWYNNE-EVANS, M.B., B.S.LOND.

Surgeon in Charge, Upper Respiratory Clinic, Victoria Hospital for Children
Research Fellow, Guy's Hospital Medical School

BEFORE discussing the organisation of the oro-facial muscles in breathing and feeding it would be well to remember that the basic function of any muscle is dependent on the evolutionary history of that muscle. Reference will be made, therefore, to the lifelong studies of Negus on the evolution of the air and food passages.

SALIENT FEATURES IN THE COMPARATIVE ANATOMY AND PHYSIOLOGY OF THE AIR AND FOOD PASSAGES

Negus (1949) has shown that in certain fish who pass part of their lives out of water, oxygen must be obtained from the air as well as from the water. For example, there are rivers in Australia, South America and Africa that run dry in the summer months. In Lung Fish that inhabit these rivers, there are both gills and lungs. When the fish is lying on the mud out of the water, air is gulped through the mouth into a special sac which connects with the mouth by a small slit-like opening in the floor of the pharynx.

The olfactory organ of most fish has no connexion with the mouth. In the Shark, it connects with the corner of the mouth. In the Lung Fish, it connects with the roof of the mouth. When out of water, air passes through the olfactory organ into the mouth and through the mouth into the lung sac. When submerged, muscle fibres surrounding the slit in the floor of the pharynx contract to prevent the ingress of water. This mechanism guards the entrance to the lung sac and constitutes a primitive form of larynx.

In Amphibians, air is forced through the larynx by swallowing movements or by a bellows-like action of the muscles in the floor of the mouth. In Birds and Mammals, however, air is sucked into the lungs by movements of the ribs.

In suction-breathing animals, the margins of the larynx would be sucked together were it not for the addition of a cartilaginous framework to the entrance of the larynx and dilator muscles that hold the aperture open. The aperture of the larynx also becomes tilted so that it is in line with the lumen of the passage to the lungs and not at right angles to it. The posterior margins of the larynx therefore become raised from the floor of the pharynx.

In animals living on land and requiring a liberal supply of oxygen from the air, the nasal passage is elongated backwards by the formation of a palate, so that instead of opening into the roof of the mouth, as it does in a number of species, it opens directly over the larynx.

Unlike Fish, Amphibians, Reptiles and Birds, most Mammals are dependent on their sense of smell for the detection of friends and enemies or for seeking food. A close relationship between the nasal passage and the larynx is necessary, therefore, to direct the current of air over the olfactory nerve endings.

In order that scent-laden air should be directed through the nasal passage and not through the mouth, a special flap is present which stands up in front of the laryngeal opening. This flap is the epiglottis and it either extends upwards into the posterior opening of the nasal passage or overlaps the posterior margin of the palate to shut off the mouth from the airway.

In Amphibians and Birds, the aperture of the larynx lies flat in the floor of the pharynx and there is no interference with the passage of food. Neither is there interference with the necessity of

[1] Paper read at the Annual Meeting of the British Dental Association, London, July 5, 1951.

breathing as the act of swallowing is rapid and the laryngeal aperture is closed by sphincteric action only momentarily.

In carnivorous Mammals that do not chew but bolt their food, the pharynx rises to engulf the food, the larynx rises with the pharynx and the epiglottis is drawn down over the opening of the larynx to form a shute for the passage of the food. The entrance to the larynx is not closed by the epiglottis but by the sphincteric girdle of muscles surrounding the aperture. The naso-pharyngeal opening is also closed by sphincteric action. Swallowing is again so rapid that interruption of breathing is of no great concern to the animal.

In herbivorous Mammals, however, the feeding process is prolonged over long periods and it would be inconvenient, if not harmful, for breathing to be interrupted with the swallowing of each mouthful of food. The food passes from the mouth, therefore, between the upraised margins of the larynx and the lateral wall of the pharynx. The lateral folds of the epiglottis assist in the protection of the laryngeal opening. In this way, nasal breathing continues without interruption. The sense of smell is also preserved to give warning of approaching enemies.

Animals that chew their food have well-developed cheeks. The lips are prehensile and are used to grasp herbage; together with the cheeks they keep the food in the oral cavity. The tongue, too, is well developed. It is mobile and prehensile; it receives and passes food between the teeth for mastication and it is concerned with the backward propulsion of food into the pharynx.

In most Mammals, the tongue lies flat in the mouth and the larynx lies just behind the oral cavity. In Man, however, there has been a flexion of the head on the vertebral column; a forward growth of the brain and an expansion of the cranium; a recession of the jaws under the cranial vault and an arching of the tongue which has forced the larynx downwards in the neck. The epiglottis thus becomes separated from the palate. As a result, there is a space between the posterior opening of the nasal passages and the laryngeal aperture.

A capacious pharynx thus comes into being. It provides a resonating cavity for the voice and as air can be directed either through the nose or through the mouth by the movements of the soft portion of the palate which is present in higher animals, the articulation of sounds thus becomes possible.

Studies of the development of the human embryo, fœtus and infant have revealed that these stages in the evolution of the air and food passages are retraced and reproduced in a condensed form in the development of Man.

For instance, in the infant, the larynx is in a far higher position in relation to the naso-pharynx than it is in the adult, and it will be shown later that although there is no actual contact between the soft palate and the epiglottis, the suckling process closely resembles the feeding process of herbivorous Mammals in that the milk passes on either side of the up-standing larynx whilst nasal breathing continues without interruption.

As the infant merges into a child, solid food is ingested and, although reduced to a semi-soft consistency by mastication, the swallowing mechanism becomes carnivorous in type and entails closure of the laryngeal and naso-pharyngeal sphincters with momentary cessation of breathing.

When the infant is at rest, breathing through the mouth is prevented by a close coaptation of the soft palate with the posterior part of the dorsal surface of the tongue rather than by closure of the lips. In the course of development the tongue gradually descends with the larynx, to make room for the downward growth of the facial skeleton from the base of the skull, and tends to become separated from the palate. Nasal breathing, therefore, becomes more and more dependent on the maturation of the facial

FIG. 1.—A drawing taken from a profile soft-tissue radiograph of the orofacial structures. Illustrating the condition of the infant's oral cavity at rest. *Note.*—(*a*) the arched tongue filling the space between the jaws which are widely separated ; (*b*) the separation of the epiglottis from the soft palate ; (*c*) the close approximation of the soft palate to the posterior part of the dorsal surface of the tongue ; (*d*) the lips and particularly the lower lip providing the anterior wall of the oral cavity.

a *b* *c*

FIG. 2.—An infant with bilateral hare lip. Age 3 months. Illustrating three phases of the suckling cycle. *Note.*—(*a*) lowering of jaw and furrowing of tongue; (*b*) raising of jaw and upward curving of anterior margin of tongue; (*c*) progressive obliteration of tongue furrow.

muscles and on habitual closure of the mouth and lips.

The movements involved in suckling and the changes that come about in the transition from suckling to sucking and swallowing will now be described.

THE MECHANISMS OF SUCKLING AND SUCKING

Auerbach (1888) observed that in mouth sucking, say, of fluids through a glass tube, an intra-oral negative pressure was created by pursing the lips round the tube, by lowering the jaw and by depressing the anterior half of the tongue away from the hard palate, whilst the posterior half of the tongue was heaped up against a depressed soft palate to shut off the oral cavity from the nasopharyngeal airway.

He paid much attention to the movements of the tongue in mouth sucking and particularly to the position and form of the "sucking space" between the tongue and the hard palate. He observed that, in infancy, an upward curving of the lateral margins of the tongue surrounded the nipple. He thought that the furrowing effect was the result of an intra-oral negative pressure and that it was not an essential part of the sucking effort.

Although Auerbach's observation of the furrowing of the tongue is correct, his conclusion that it is the result of an intra-oral negative pressure is wrong, for it is the cause and not the result of the drop in pressure.

Since the space created by grooving the tongue is filled completely in the infant by the nipple or the teat, the effect is to draw milk into the ampullæ of the ducts or into the teat. Further movements, to be described later, express this milk into the mouth.

In soft tissue radiographs showing the condition of the infant's mouth at rest, it is to be noted that the tongue fills the space between the jaws which are widely separated; the dorsum

a *b*

FIG. 3.—Same infant as in fig. 1 after plastic repair of hare lip; (*a*) age, 4 months; (*b*) age, 8 months. Illustrating change in behaviour of orofacial muscles in response to spoon feeding. *Note.*—(*a*) the suckling pattern which is concerned with pumping the milk into the mouth and squirting it into the oropharynx. Note the incompetence of the lips; (*b*) the sucking pattern which is concerned with the creation of an intra-oral negative pressure to draw food into the mouth. A swallowing movement passes the food into the oropharynx. Note the competence of the lips.

of the tongue is in apposition with the hard palate; the posterior part of the dorsal surface of the tongue is closely applied to the soft palate; the anterior walls of the oral cavity are provided by the lips, and in particular by the lower lip. The lateral walls, provided by the buccinator muscles and by the buccinator pads of fat, are of course not demonstrated.

Clinically, the lips may, or may not, be in contact and it will be seen that nasal breathing is ensured by the coaptation of the tongue with the soft palate which provides an efficient barrier against oral breathing.

In suckling, the mouth is opened; the lower lip is everted to support the teat and the upper lip is everted to envelop it. The lips, together with the cheeks, keep the milk within the oral cavity but do not take an active share in the suckling process.

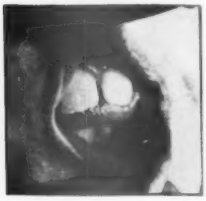
An infant with a bilateral hare-lip and a cleft extending through the alveolus on either side of the premaxilla but not into the hard palate,

a

b

FIG. 4.—The act of swallowing in a child age 12 years. Illustrating the normal pattern of muscle behaviour. *Note.*—(*a*) the relatively passive role of the lips ; (*b*) on parting the lips, the teeth are held together to seal the walls of the oral cavity.

a



b

FIG. 5.—The act of swallowing in a child age 11 years. Illustrating an abnormal pattern of muscle behaviour. *Note.*—(*a*) the contraction of the lips to seal the oral cavity and in particular the contraction of the lower lip to restrain the forward thrust of the tongue ; (*b*) on parting the lips, the forward thrust of the tongue between the teeth which are not held together.

enabled the movements of the tongue to be observed as far back as the soft palate.

As the jaw is lowered, the tongue is grooved longitudinally by the intrinsic superior longitudinal muscle fibres and by the anterior half of the genioglossus muscle. This, as already stated, fills the nipple or teat with milk.

The neck of the teat is then compressed against the upper gum pad by a curving upwards of the anterior margin of the tongue and this is followed by an elevation of the lower gum pad.

At the same time, the central furrow in the tongue is progressively obliterated from before backwards by a peristaltic wave of contraction in the transverse fibres. This bulging upwards of the tongue is supported by an elevation of the jaw and by a peristaltic contraction of the mylohyoid muscle to compress the teat against the hard palate.

The milk is expressed from the teat into the oral cavity but it is not allowed to accumulate. The bulging of the tongue against an actively depressed and tensed soft palate squirts the milk past the faucial pillars into the lateral food channels.

Although there is no contact between the epiglottis and soft palate, as there is in herbivora, radiographs have shown the close proximity of these two structures. A folding of the epiglottis in a tube-like fashion round the opening of the glottis produces efficient passages for the milk lateral to the larynx and nasal breathing is thus able to continue without interruption throughout the entire suckling process.

The tidal air of an infant is small; the respiratory rate is high and entirely automatic. The rhythm of suckling once initiated tends to continue and a free nasal airway for continuous nasal breathing is therefore essential.

The need for continued respiration during the suckling process was graphically demonstrated in an infant who was born with bilateral atresia of the posterior nares. Vain efforts to breathe through the nose were accompanied by an indrawing of the soft tissues in the epigastrium, intercostal spaces, supra-clavicular and submandibular triangles. The point of asphyxia was reached before the suckling process was discontinued and the respiratory distress was relieved by a few breaths through the mouth alongside the teat of the feeding bottle.

Gesell (1945) and others have shown that during intra-uterine life, the central nervous system is progressively organised to respond to expected stimuli and to carry out movements which will preserve life when the infant is born and is deprived of the maternal circulation. Thus, when the time comes, the infant is able to use groups of muscles for breathing, crying, turning the head, grasping and suckling.

Suckling, therefore, is an inborn function of the oro-facial muscles initiated by the contact of the nipple or teat with the lips. It is a reflex process involving a rhythmical pumping and squirting action of the soft palate, tongue and jaw muscles.

When spoon feeding or feeding from a cup is introduced, the central nervous system reorganises the movements of the oro-facial muscles in response to the new stimuli. So that, in addition to suckling from the breast or feeding bottle, the infant learns to suck semi-soft food from a spoon or to sip fluids from a cup by means of a number of sucking efforts.

Sucking is an acquired function of the oro-facial muscles. It involves the creation of an intra-oral negative pressure and it is not a continuous process like suckling. When sufficient fluid has accumulated in the mouth, the act of sucking is interrupted by a swallowing movement to dispose of the oral contents and, at the same time, nasal breathing is interrupted by

a closure of the nasopharyngeal and laryngeal sphincters.

Suckling and sucking therefore are not synonymous terms.

Maturation of the Feeding Mechanism

Whillis (1946) has already shown that the first stage of swallowing fluid involves a peristaltic squirting movement of the tongue similar to that which occurs rhythmically in the infant. In an infant, however, the tongue is performing these movements in a different environment from that of the child or adult.

Prior to the appearance of the upper and lower dentitions, the infant's tongue develops a tip and becomes more mobile so that it can be protruded to receive and pass solid food between the gum pads and the erupting teeth for mastication. The whole of the continuous muscular band surrounding the mouth and the upper part of the pharynx (made up of the orbicularis oris, buccinator and superior constrictor muscles) plays an important part in swallowing at this stage of development. The lips and cheeks not only keep the food in the mouth, but by their active contraction they resist the forward and lateral spread of the tongue when the mylohyoid muscle contracts and the tongue is compressed against the hard palate and bulged backwards to force the food into the oropharynx. The continued progress of the food through the pharynx is effected by a peristaltic movement of the constrictor muscles. This movement commences in the superior constrictor muscle, the contraction of which, together with elevation of the soft palate and contraction of the palatopharyngeus, closes the nasopharyngeal opening.

During the early period of childhood, the opposing teeth come into a closer and closer relationship until, finally, in the act of swallowing the teeth are held firmly together to seal the walls of the oral cavity and to stabilise points of origin for the muscles involved in the backward propulsion of food by the tongue into the oropharynx.

Until swallowing with the teeth together becomes the rule, the lips and cheeks, and particularly the lower lip, contract to form a firm muscular wall to the oral cavity in which the tongue is acting. When the fully matured act of swallowing is achieved, the muscular wall of the oral cavity is replaced by the rigid boundary of the opposing teeth in occlusion and the muscles of the lips and cheeks take little or no further share in restraining the forward and lateral spread of the tongue. Henceforth they are relegated to the role of keeping the food in the mouth and the alveolo-buccal sulcus free from deposits of food whilst chewing. They are employed actively in swallowing only when fluids are sipped from a cup or when juices are expressed from semi-soft foods such as fruit.

Nevertheless, the facial muscles take more and more a part in the expression of feelings, whilst the development of intellect is reflected in the formation of speech sounds and, later, words and sentences. Lip behaviour therefore becomes more and more dependent upon the movements of the attendant muscles of facial expression and upon the development of the speech mechanism. In due time, the passive vacant expression of the infantile facies is replaced by the maturer facial appearances that characterise the individual.

Meanwhile, as the jaws are employed for mastication, the jaw muscles develop considerable powers of tonic contraction much in the same way as when the infant extends the flexed spinal column and learns to stand, the trunk muscles develop high degrees of tonicity. Gradually, sufficient reserves of muscle tone are built up, particularly within the masseter and temporal groups of muscles, to balance the growing weight of the mandible so that in the resting position the mouth is kept closed with a space of 2–3 mms. between the occlusal surface of the teeth.

Closure of the lips at rest, however, is the result of an acquired pattern of behaviour that becomes established as a habit at an early or a later date.

Clinical Implications

These observations are not entirely of academic interest. There are practical implications of considerable importance in orthodontics.

Apart from the deliberate acts of swallowing which occur when feeding, many acts of swallowing occur subconsciously day and night in the disposal of accumulated saliva in the mouth and in the disposal of nasal secretions deposited in the post-nasal space by ciliary action.

Rix (1946) and Ballard (1948) have pointed out that the dento-alveolar structures are constantly subjected to pressure impulses arising from the recurring patterns of movement between the tongue, lips and cheeks and that this muscular environment of the developing teeth plays an important part in dental alignment and arch relationship.

For many years Rix has noticed that in children who have normally related jaws and intact dentitions, but who do not swallow with their teeth together, the lips and cheeks contract to resist the forward and lateral spread of the tongue ; he has found that in these

circumstances abnormalities of dental alignment and arch relationship are commonly present which appear to be related directly to the abnormal pattern of swallowing behaviour. In fact, as Pringle (1950) has pointed out, there are various ways in which the muscles of the lips and tongue may be used to produce an efficient seal at the front of the mouth in the act of swallowing and each pattern of behaviour appears to have its corresponding dental abnormalities.

It seems, therefore, that in considering the ætiology of dental mal-occlusion, it is just as necessary to relate dental alignment to the behaviour patterns of the oro-facial muscles within whose influence the teeth erupt, as to relate dental alignment to the size, form and relationship of the jaws on which the teeth are based.

Occlusal and other local factors are obviously important and must, of course, always be taken into consideration.

Unfortunately for the orthodontist, Man is an heterogeneous Race and there is an infinite variety of facial types. Genetic factors of racial or familial origin may influence the growth patterns of the jaws or the behaviour patterns of the muscles. Individual characteristics, both good and bad, can be inherited, therefore, and enquiries into the ætiology of a dental mal-occlusion frequently present the orthodontist with a problem which is often difficult if not baffling.

REFERENCES

AUERBACH, LEOPOLD (1888) *Archiv Physiologie*, Leipzig, 59.
BALLARD, C. F., GWYNNE-EVANS, E. (1948) *Dent. Rec.*, **68**, 1.
GESELL, A. (1945) The Embryology of Behaviour. Harper Bros., New York and London.
NEGUS, V. E. (1949) The Comparative Anatomy and Physiology of the Larynx. William Heinemann, Medical Books Ltd., London.
PRINGLE, K. E. (1950) *Med. Pr.*, **224**, 3.
RIX, R. ERNEST (1946) *Dent. Rec.*, **66**, 103.
WHILLIS, J. (1946) *J. Anat. Lond.*, **80**, 115.

DISCUSSION

Mr. R. ERNEST RIX said he wished to congratulate Mr. Gwynne-Evans on presenting such an excellent paper.

From the orthodontic point of view, the organisation of the muscles in relation to feeding was, he thought, of more importance than the organisation in relation to breathing, for they saw that where it failed there was some lack of alignment or some failure in the proper correlation of the two arches to each other. Shortcomings in relation to feeding were difficult to detect and, as a consequence, they had gone unnoticed for so long.

So it came about that mouth breathing, for instance, was supposed to produce the proclinated upper incisors. Then there was the adenoid facies, with its narrow upper arch and high vault. The fact that these conditions were often found in the absence of mouth breathing and adenoids was just thought to be a little puzzling but not too inconsistent. But what they now knew was that proclinated incisors, the narrow arch and the high vault were never seen in the absence of immature oro-facial muscular behaviour in relation to feeding, and in relation to swallowing in particular.

With regard to the breathing processes, he wished to have more clarification from Mr. Gwynne-Evans on one point. As he saw it, it was contended that as the infant grew, nasal breathing became more and more dependent on the maturation of the facial muscles to keep the lips closed. Earlier on, the posterior seal between the soft palate and the dorsum of the tongue was the major insurance against mouth breathing. The tongue so completely filled the infant's mouth that it was always in contact with the soft palate; but with the subsequent descent of the larynx and the tongue, the tongue no longer formed the same constant contact with the soft palate. The child came to be more dependent upon closed lips to ensure nasal breathing. Then Mr. Gwynne-Evans went on to say, " the closure of the lips at rest is an acquired pattern of behaviour." He would like Mr. Gwynne-Evans to say a little more about this. He had been impressed by the way the newborn invariably had their lips closed.

He thought that one was more likely to see lips apart at 4 years than at 4 weeks. If this point was conceded, he was still not sure that he could be convinced that the failure to seal the lips at, say, 4 to 5 years was due to a lag in maturation of the behaviour of the muscles of the lips and cheeks when at 4 to 5 weeks the lips were probably closed. He could follow Mr. Gwynne-Evans if he said that a child's ability to maintain a lip seal was dependent upon a fairly small free-way space between the occlusal surfaces of upper and lower teeth, and that if the mandible lolled away to produce a large free-way space, it was inevitable that the lips should fall apart more readily.

The wider implications of the subject matter of the paper were of great importance to orthodontists. Dental irregularity was seen in children whose oro-facial muscular behaviour was not maturing synchronously with their dental age. This failure of synchronisation prevented the dentition developing in a certain expected environment. The dentition was adversely moulded by an unhelpful muscular environment. If muscular behaviour did not mature until puberty, as was often the case, it was too late for it to help the dentition.

For years the very diversity of irregularities seen in these children with immature behaviour had puzzled him. Was it a fallacy, after all, to associate the conditions with this single factor, this immature behaviour? Yet where the behaviour was good or appropriate to the age, there was a well-shaped dentition. He could not help feeling, therefore, that, despite the diversity, the poor or immature behaviour must be intimately associated with the malocclusion.

The most significant of the child's actions, from the orthodontic point of view, was its mode of swallowing, an action repeated some hundreds of times a day. Swallowing was a highly individual and constant action in the same child. In children who swallowed, still employing their infantile mechanism, the teeth were not closed, as Mr. Gwynne-Evans had shown, but that was the only basic similarity among the children. Each child had its own added peculiarity. Some swallowed with the teeth

quite wide apart; others had the teeth so near to being closed that only very careful observation prevented one from thinking that they were in fact closed. Some tightened their lower lip excessively in action. Some tightened upper and lower lips. In some the front of the tongue came well forward between the incisors to touch both upper and lower lips. In others the front of the tongue would touch the lower lip only.

One could continue to name individual peculiarities. The more they were appreciated, the more one discovered that the teeth tended to follow them into certain related abnormal patterns. There was an enormous field for research here, and Mr. Gwynne-Evans was exploring what he thought was likely to be the most fruitful ground so far covered in orthodontics.

He would like Mr. Gwynne-Evans to tell them the percentage of cases in which therapeutic measures were successful. Of course, there was the defeatist attitude of those who said that the organisation was genetically determined and, therefore, they could not do anything about it. Although that might be true in some cases, he felt that the situation was not hopeless, at least for a percentage of these children. He thought that it was possible to do something for them, and occasionally one succeeded.

Mr. MEACOCK said that he wished to repeat something once said in a lecture by Dr. Sim Wallace. It was that the newborn infant was a nose breather and not a mouth breather, and that mouth breathing was the result of breathing cold damp air for which he blamed the open window at night and the modern hygienic mind. He also said that man was the only animal which did not snuggle its young, as the cat snuggled its kittens, and so on. All animals except man breathed warm air in infancy, and nasal obstruction and mouth breathing developed through breathing damp, moist night air.

Mr. C. F. BALLARD said it had to be realised that we were right at the beginning of investigations into muscle patterning. Such investigations at this stage were not amenable to statistical analysis as were skeletal patterns as seen in radiographs. This was a more difficult problem. As Mr. Gwynne-Evans had mentioned that he (Mr. Ballard) thought that muscle patterning was inherited, he wished to say that at this stage of the investigations—mostly clinical—that was only a hunch. It had not been proved. He felt that a lot of these abnormalities must be inherited, because they frequently saw the same type of patterning thoughout many branches of a family.

Certain neuromuscular patterns must be mature at birth in order to ensure survival, and amongst these are those of the head and neck for the maintenance of nasal respiration and feeding. On the other hand, the neuromuscular patterns of walking mature later. He thought that that was what was meant by maturation of neuromuscular patterns.

Mr. THEODORE BERY asked whether, if natural breast feeding were continued for longer than the usual period of about six months, the development of the oro-facial muscles would be delayed, bearing in mind that, in the natural state of prehistoric man when the jaws were well developed, natural feeding was continued for a year or even longer.

Miss SMYTHE said that she thought that Mr. Gwynne-Evans had said that tonus was responsible for lifting the corners of the lips and not for keeping them closed. She would like him to elaborate on that point. Secondly, she asked him to give briefly his general opinion on the question of the relation between form and function. How much did he believe that the function of muscles could affect the form of developing bones around which and over which they were acting during the course of the development of the child? She appreciated that that was a very big subject, but she would like to hear his general opinion on it.

MR. GWYNNE-EVANS' REPLY

Mr. GWYNNE-EVANS said that he was not able to answer all the questions clearly and dogmatically. He could only do his best. As Mr. Ballard had said, this was new work. It was impossible to dogmatise at this stage.

On the question of maturation, Mr. Ballard was quite right. The motor pathways of the central nervous system of an infant were, to some extent, mature as far as they concerned the musculature which was responsible for maintaining the life of the infant independent of the maternal circulation. The infant was born able to breathe, grasp its mother, turn the head, and suckle. The motor pathways involved were mature at birth. After birth the sensory pathways were myelinated and matured before the motor pathways. It was the response of the central nervous system to the patterns of environmental stimuli which started the process of maturation of the basic behaviour patterns. This was a long drawn out process in man. He did not know whether he was yet fully mature himself! He did not see how they could bring in the question of chronological age. Certain functions matured quickly in some children, and in others they matured later. The rate of maturation varied from individual to individual and was not directly related to age.

On the question about the angle of the lips, in bilateral facial palsy there was a dropping of the angles of the lips through absence of muscle tone. Tonus was dependent upon the reflex arc being intact. If that reflex arc was broken, as it was in facial palsy, there was absence of tone, and the one thing to be noticed at once was a dropping in the angle of the lips. He thought of lip closure as a behaviour pattern directly tied up with the activities of the mind. In these days, he himself usually went about with grimly closed lips for most of the time. From photographs taken when he was 7, he saw that he went about then with a somewhat vacant facial expression and open lips. He felt that lip closure was a behaviour pattern which was tied up with the progress of thought and intellect. It was not so dependent on tonus as on maturation of oro-facial behaviour.

In infancy there was no doubt whatever that the heaping up of the posterior part of the tongue against a depressed soft palate was responsible for the prevention of mouth breathing. It was very difficult to depress the tongue away from the palate in an examination of an infant's mouth. The infant with congenital atresia of the posterior nares demonstrated the necessity of a free passage through the nose for breathing in the life of a normal infant.

He thought that there were just as many children with their lips closed as there were with their lips open. When they were born he thought it probable that their lips were closed, but he had noticed infants in the first ten days of life with their lips widely open and he felt that closure of the lips was usually acquired as a habit in the course of maturation.

There were children who developed the habit of mouth breathing because they had nasal obstruction which could be caused by chronic œdema of the nasal mucosa or by an overgrowth of adenoid tissue. Those children had to learn mouth breathing and, having learned that habit, they had continued with it.

The question about the suckling of infants was interesting. One could start spoon feeding at any time. The suckling pattern continued but by providing the child's mouth with a new pattern of stimuli there appeared in addition to the suckling pattern the more mature pattern of sucking food from a spoon. This change in behaviour need not be evoked until spoon feeding was started. Suckling could be continued for nine months before spoon feeding was introduced and the child would not develop the sucking pattern until then, or one could start spoon feeding at four months and thus begin the process of maturation much earlier. There may be some infants in whom suckling had continued for too long with a subsequent delay in maturation, but, normally, it was only a matter of time before maturation proceeded.

Another difficult question was that of inheritance. Sicher, an authority on whom they could rely, had said that what could be observed in the individual was not the effect of the genetic pattern, but a genetic pattern plus environmental factors that had stimulated its evolution, minus environmental factors that had inhibited its evolution. A genetic pattern could be upset by environmental factors. Over-evaluation of the genetic determination of the individual was an approach by the pessimistic.

It was a difficult problem on which, in many ways, he agreed with Ballard. They had both seen families with the same facial patterns and it was very depressing, because they felt that if the abnormal patterns were inherited it would be extremely difficult to bring about a change. He hoped that there were other ways out of that problem.

Mr. Rix had asked about the results they had obtained in trying to bring about a change of muscle behaviour. They had filmed cases in slow motion and they were now able to compare the children as they were today with the films taken a year or so ago. This was an invaluable method. When a child came to see them, they had his case report, his study models, his radiographs, and his cine-film of oro-facial behaviour. Although, in many cases after twelve months of treatment, the abnormal muscle behaviour pattern was not so marked and there was an improvement in the alignment of the teeth, one found on careful examination that the pattern was unchanged but its effects had been obviated. In most cases, he had not yet been able to convince himself that he had brought about a change from abnormal to normal behaviour.

He was interested in the suggestion about damp, moist air. There was reference in a book from which he had quoted to the practice of the South American Indians whose children were left in the open air. From birth, the mothers pursed the children's lips together to prevent the onset of mouth breathing. They did not coddle their infants like many modern mothers did. They were not wrapped in warm shawls and cuddled by their mothers, but they were securely wrapped up in swathling bandages and put out in the fresh air, the mother closing the lips with the finger and thumb. Had they succeeded in bringing about a proper pattern of lip behaviour from the very first day after birth?

Mr. C. G. Spiridion, who proposed a vote of thanks to Mr. Gwynne-Evans, said that the paper had been greatly appreciated. It was a subject in which the modern practitioner was most interested, and many had known very little about certain aspects of what was a most informative paper.

The vote of thanks was seconded and carried by acclamation.

DENTAL SERVICES IN GENERAL HOSPITALS

By Professor H. J. HUMPHREYS

My aim in this paper is to consider the development of dental services in hospitals since the National Health Services Act came into force in July 1948. What progress has been made in these three years, what developments can we reasonably hope for in the near future? And by the near future I mean the next twenty years—a period in which any large increase in the number of dentists on the Register, or any very ambitious expansion of hospital accommodation can hardly be expected when we consider the facilities available for training the former and the share of national building resources likely to be allotted to the latter. The material for any sort of national survey along these lines is not yet available, but it will not be without interest to consider the hospitals for which the Birmingham Regional Hospital Board is responsible. The Birmingham region is one of the largest in the country; it is estimated to contain about 4½ million people—1/11th of the total population of Great Britain; it has perhaps the most natural frontiers of all the fourteen regions and comprises the five West Midland counties; it has several heavily industrial areas, the Potteries of N. Staffordshire, the Black Country of S. Staffordshire and N.E. Worcestershire, the Birmingham and Coventry

districts; it contains the two completely rural counties of Hereford and Shropshire and the two more populous shires of Warwick and Worcester with light industries dotted here and there; it contains over 43,000 hospital beds with every type of hospital represented. In short it would be difficult to find a more typical area of Britain and it is reasonable to expect that many lessons learnt from it could be applied to the rest of the country.

It has certain other advantages for our present purpose. It was the first regional authority to appoint a consultant adviser on dental surgery and in the person of Brigadier R. A. Broderick it secured for the post a man with just the right experience, the right qualifications and the right personality. This piece of good fortune enabled its regional hospital board to obtain in the first year of operation of the new Act a comprehensive survey of its hospital resources for dental treatment, and realistic plans for their expansion. These plans were approved successively by its dental advisory committee, its consultant and finance committees and finally by its regional hospital board, and as a member of all these different bodies I should like to pay tribute to the encouragement the plans for the improvement of the dental services in hospitals have received; it is true to say that in no case have the recommendations of its consultant dental adviser been rejected. It will, therefore, be evident that any responsibility for the developments I am about to describe belongs primarily to its dental consultant, though much is due to the co-operation of the committees I have mentioned.

In January 1948, six months before the National Health Act came into force, the Ministry of Health issued the pamphlet R.H.B. 48.1 which described the ideal towards which the various consultant services in hospitals should be encouraged to aspire. But it was at once apparent that this was a very long-term policy which could not possibly be applied to the realities of the present situation or, in dentistry at any rate, to any situation likely to arise in the next twenty years—the period to which I am confining my discussion. For example the recommendations of R.H.B. 48.1 on the optimum proportion of dental house-surgeons to hospital beds would involve the appointment of about 200 annually for the Birmingham Region alone on the assumption that six months would be the average duration of these appointments. The annual output of qualified dentists from the Birmingham Dental School cannot exceed 40 to 45 without a major building programme and there are no dental schools in the neighbouring regions to the west and south (Wales and Oxford); these considerations prove that the M.O.H. proposals cannot be implemented in the period under discussion.

The consultant adviser therefore made a survey of the hospitals of the region, their need of dental services and the possibility of meeting them. It at once became clear that there were great deficiencies in accommodation and equipment, but on the whole hospital management committees have responded well to the recommendations of the consultant adviser and there has been a considerable improvement in this respect. It was also evident that the application of a simple ratio of dental surgeons to hospital beds of all types was not practical. Mental hospitals comprised over two-fifths of all beds in the region and very little conservative treatment is possible for patients in these institutions. Rather more of this treatment is required for the chronic sick, though most of these have attained the denture age. It is tuberculous and orthopædic patients who claim the most time and attention from the dental surgeon, since the patients in general hospitals for acute medical and surgical cases have too short a stay there and in general are too ill for full dental treatment to be possible. On these considerations and in view of the dental manpower available it was decided to recommend to hospital management committees the following establishment:

(A) In mental hospitals one whole-time dentist for 3,000 beds.
(B) In hospitals for chronic sick one whole-time dentist for 2,000 beds.
(C) In hospitals for tuberculous patients one whole-time dentist for 1,500 beds.
(D) In hospitals for orthopædic patients one whole-time dentist for 1,500 beds.

In the Birmingham Region there are 18,852 beds in Class A, 6,362 in Class B, 2,895 in Class C and 1,179 in Class D. One whole-time dentist means 11 sessions per week and it is convenient for boards and committees to think in terms of weekly sessions rather than of dentists employed, since two or more general practitioners working part-time are clearly the equivalent of one whole-time officer. In terms of weekly sessions the Birmingham Hospital Region therefore requires, to fill the above establishment, 70 sessions in Class A, 35 sessions in Class B, 21 sessions in Class C, 9 sessions in Class D. In Class D this establishment has been practically attained; we are nearly half-way to its achievement in Classes A and B, but only one-quarter of the sessions required are as yet being served in Class C.

These sessions are being supplied by part-time general practitioners and senior hospital dental officers of whom the region employs five full-time and a number of others part-time.

So far nothing has been said of acute hospitals with out-patient departments; there are in this region 18 hospitals of this nature with more than 200 beds apiece, some of them with wards for chronic sick in addition to those for acute cases, and the traditional method of staffing them is by a graded establishment of consultants, registrars and house surgeons, three classes we must now consider.

Consultants

R.H.B. 48.1 recommended one full-time dental consultant for every 300,000 of the population; but the effective demand for consultant services is at present much below its potential and only an improved supply of those services will stimulate a demand for them on the above scale. We have therefore adopted a temporary establishment of one consultant for every ½ million of the population which entails 99 weekly consultant sessions. With two full-time and six part-time consultants we are rather more than a third of the way to this target. Moreover some of the senior hospital dental officers act as assistant consultants with a full consultant on call so that in effect we are more than half-way to our goal in consultant sessions.

Registrars

These posts are properly regarded as trainee posts for the consultants of the future, and the Ministry has ruled that due regard should be paid to the number of consultant posts likely to be available in deciding on the regional establishments of registrars. Now the recommended establishment of full-time dental consultants means only 166 for the whole of the country. The assumptions that a consultant works for thirty-three years (32–65 years old) and that the period of a dental registrar's training is normally two years would give an establishment of only 10 for the whole country. But of course a number of consultants will be only part-time, the teaching hospitals and universities require a quota and the Birmingham Regional Board has been allotted two dental registrars, one of whom works at the Plastic Surgery Unit, and the other in the teaching hospital group. It is therefore clear that there is no general possibility of employing dental registrars in the acute hospitals of the region.

House Surgeons

Dental house surgeons are in practice unobtainable for posts in regional hospitals. The claims of military service, the financial emoluments now open to the newly qualified dentists, and the backward condition of the dental services in regional hospitals generally all contribute to this result. It is worth-while, therefore, to examine a proposal which has been widely discussed in recent months—that new legislation should imitate a provision of a recent Act of Parliament which makes it obligatory upon newly qualified doctors to work for one year under supervision in hospitals approved for the purpose. Six months as house surgeon and six months as house physician would constitute the normal pattern of employment. It has been suggested that a similar obligation should be imposed on recently qualified dentists, but in their case six months' pre-registration service is generally held to be sufficient since on qualification they have had more experience of practical work and have attained a higher level of operative skill than the newly qualified doctors. There is reason to believe that such a plan would be generally welcomed by the dental schools and those responsible for the training of dentists. All those who saw it bear witness to the great value of the experience gained by the resident dental surgeons so widely employed during the war in hospitals of the Emergency Medical and the Fighting Services, and equally to the value of these posts to the hospitals concerned. The obstacle to the adoption of a pre-registration period as house surgeon for all dentists is that nothing like enough posts exist to employ in this way the present output of the dental schools which is about 500 dentists annually. This means the creation of 250 dental house surgeons' posts in the 20 hospital regions of the United Kingdom, an average of 12–13 per region. This is not an impossible target though of course some of the Scottish regions with a low level of population and hospital provision could employ very much fewer and the large regions would be called upon to employ many more. But as the primary object of the posts is to provide further training for the young dentist, they would have to conform to certain conditions and be approved by a responsible authority, just as do the similar posts provided for the newly qualified doctors. The dental house surgeon would have to work under the supervision of a consultant, senior hospital dental officer or experienced general practitioner, and he must have access to a sufficient variety of clinical material, including at least one fair-sized hospital for acute sick with a good out-patient and accident department. He would learn little if he spent his entire time in one large hospital for mental cases. Of the 27 groups in

the Birmingham Hospital Region many would be unsuitable for pre-registration dental appointments; a few could establish more than one. With its present number of senior dental staff (consultants, senior hospital dental officers and general practitioners) it is considered that 9 such posts could be created forthwith with profit both to the holder and the hospital. If the senior staff were raised to the level of the provisional establishment I have described, this number could be increased to 15. To this must be added the dental house surgeon posts of the Teaching Hospital Group, an addition of 6 more. There are no insuperable difficulties to be overcome before such posts could be created. The rapid expansion of dental services in the hospitals of the Emergency Medical Service and of the Fighting Services in the early part of the last war prove that the job could be done and done quickly. The experience of the Birmingham Region in obtaining suitable senior dental staff for its hospitals encourages us to believe that in a few years our provisional establishment of such staff could be completed if some improvement were made in the status and prospects of senior hospital dental officers, particularly if it were understood that this was a possible stepping stone to consultant status. This means that if the Birmingham Region is typical, enough house surgeons' posts could be created in the next few years in the hospitals of Great Britain to absorb the annual output of all its dental schools. The way is clear if the will to follow it is there. One of the chief deterrents is the expense involved to the hospital service and I now propose to examine this aspect of the matter.

The Financial Aspect

As we all know it has become necessary in the national interest to impose a temporary ceiling on the expenditure of the National Health Service and the creation of 300 dental house surgeons' posts in the hospitals of the United Kingdom would add to their recurrent expenses for salaries and maintenance a sum of £105,000 per annum. Those hospitals in which a dental house surgeon could be usefully employed have already a properly equipped dental surgery planned or in being, so that no new capital equipment would be required. Is it possible that besides the gain to the efficiency of the hospital services and the improvement in the training of dentists, there are financial economies which might be set against the expense involved? The aim of the National Health Act is to supply a complete dental service to all, and it is not irrelevant to compare the expense of supplying it in hospitals and by general practitioners working in their own surgeries. The data for an accurate calculation on a national basis are not available. The figures given in Parliament on the expense of the general practitioner service in 1949/50 might also be misleading, for since that period there has been some reduction in the rate of remuneration of dentists by local executive councils. But if we bear in mind that some fallacies are involved it is not uninteresting to look at such figures as are available. In 1949/50 the expense of the general practitioner service under the National Health Act amounted to £43,000,000. In this period the total number of new forms received by the dental estimates board was 8,583,537, which would appear to give an average cost per estimate of £5·01. The changes in the rate of remuneration since then, and possibly, though not certainly, some falling off in the demand for dentures will operate to reduce somewhat this average cost per estimate.

No bedded hospitals that I know keep the accounts of their different departments separately. Dental hospitals are all teaching institutions which are always more expensive to run than non-teaching hospitals. The accounts of the Birmingham Dental Hospital for 1949/50 have been examined to see if the average cost per patient treated can be calculated and a figure obtained comparable with the figure of £5·01 for the general practitioner service. Those of the staff engaged on teaching duties are remunerated by the University not by the hospital, and their salaries have not been included in the figures; other adjustments have also been made to arrive at a figure which represents as accurately as possible the actual cost of treatment per patient. The figure obtained was £1 19s. 4d. and has the authority of a chartered accountant to support it. This implies that the cost of dental treatment in an institution is only two-fifths of its cost in the general practitioner service but I believe this estimate to be too low. Other calculations based on the Birmingham Dental Hospital statistics but including a proportion of University costs indicate the relative figure to be about three-quarters.

In 1949/50 the supply of dentures amounted to 61 per cent of the total expenditure on the general practitioner service (£43,000,000). Mr. J. N. Anderson, lecturer in the prosthetics department of the Birmingham University Dental School, has carried out calculations for me with the object of comparing the cost of supplying dentures in the Birmingham Dental Hospital with the cost in the general practitioner service, and has arrived at the following figures:

University staffs play a prominent part in the work of this department and a proper proportion of their salaries is included in the costs. The average price of a denture in the practitioner service may be taken as £4 10s. 0d., calculated to the nearest shilling. The corresponding figure in the Birmingham Dental Hospital is £3 10s. 6d.

These figures appear to show that dental services in hospitals are less costly to the exchequer and to the taxpayer than those supplied by general practitioners. The expansion of such services in hospitals would therefore appear to be sound economy from the point of view of the Ministry of Health.

But there is another advantage that might accrue from the rapid expansion of these services to the point at which dental house-surgeon posts would be available for a pre-registration period to all newly qualified dentists. It will be remembered that the Teviot Committee recommended an annual entry to the profession of 800 new dentists and to the schools of 900 new students if the numbers of those on the Dental Register were to rise to and be maintained at a figure adequate to provide a full nation-wide service. The present entry is about two-thirds of that figure and an annual increase of 300 would seem to imply a very substantial building programme. I rate the value of a six months' experience as house surgeon so highly that personally I should be prepared to reduce the length of the dental curriculum in universities by at least that amount. A reduction in the length of the curriculum should theoretically enable the existing schools to increase their output of qualified dentists, though doubtless circumstances differ from one school to another. Having recently visited the dental schools I am convinced also that some immediate increase is possible in the number of students accepted for training, perhaps up to 100 per annum. These two increments could carry us a considerable way to the goal of 800 dentists qualifying each year, and if combined with a judicious development of auxiliary services would go far to solve the problem of staffing the dental services under the National Health Act. I realise that here I am raising some controversial issues, but I do so deliberately since the whole purpose of this paper is to stimulate thought and provoke discussion.

TREATMENT OF INJURIES TO ANTERIOR TEETH

By C. COOKE, F.D.S. R.C.S.Eng., L.D.S.Manc., and T. C. ROWBOTHAM, B.D.S.Manc., F.D.S. R.C.S.Eng.

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From time to time every practitioner is called upon to deal with an emergency case of injury to an anterior tooth. Sometimes the patient attends the surgery soon after the accident has happened, whilst in other cases weeks, or even months, have been allowed to elapse before advice is sought.

The desirability of immediate treatment cannot be overstressed as in every way the prognosis and control of the case become more problematical as the period of delay is increased.

The ways in which trauma to an incisor tooth can occur are innumerable but, in our experience at the Dental Hospital of Manchester, the majority of the victims are children under the age of 15 years. At the first visit and in all cases, the routine procedure should be as follows:

(1) Full case history and assessment of the damage to the tooth is recorded.

(2) Treatment of damage to soft tissues is carried out, including prescription of mouth washes if considered necessary.

(3) Radiographs are taken of all teeth in the affected area to obtain evidence of (*a*) fracture of the root, (*b*) fracture of the alveolar process, (*c*) displacement of tooth, (*d*) size of the pulp chamber, (*e*) degree of calcification of the root.

(4) The pulpal response of the affected tooth should be ascertained and compared with that of adjacent teeth. Various methods of eliciting a response from a pulp have been tried but the most useful results come from a calibrated electrical pulp tester. With this particular instrument it is possible to keep a periodic check on the health of the pulp. When such an instrument is not available thermal tests can be substituted, but it is difficult by such means to register any critical comparison with near-by normal teeth or to give the operator a method of measuring the recovery or degeneration of the pulp at a later date.

Although presenting an infinite variety of clinical features all types of trauma to anterior teeth fall into one of the following four classes:

(I) No loss of tooth substance or fracture of root.

(II) Fracture of crown without exposure of pulp.

(III) Fracture of crown with exposure of pulp.
(IV) Fracture of the root, with or without fracture of the crown.

Unless the pulp is dead or degenerating, the prognosis is invariably better if the calcification of the root is incomplete. The young pulp, with its excellent blood supply provided by its widely open apex, has great powers of recovery and is not likely to have its circulation seriously threatened.

Class I.—No Loss of Tooth Substance or Fracture of Root

(*a*) *Complete Calcification of the Root.*—In its least complicated form there may be few, if any, clinical signs or symptoms. Depending upon the force of the blow there will be varying degrees of tenderness of the tooth, from a slight sensation of discomfort to severe periodontitis. Increased mobility may be present to the extent of subluxation or dislocation.

The subjection of a tooth to a blow of appreciable force always presages a grave danger of death of the pulp either immediately or developing slowly over a period of weeks. This danger is obviously greater when calcification of the root is complete for then a slight lateral movement of the apex is sufficient to compress or tear the blood vessels passing through the small apical foramen.

Our statistics show quite clearly that the pulp dies in a higher percentage of cases when the crown remains intact than when a fragment is broken away. Probably the ability of the crown to resist the blow without fracturing causes the full shock to be transmitted to the apical region. Any movement of the apex may result in interruption of the vascular supply to the pulp and the continuity of the nerve fibres passing through the foramen may be broken.

On the other hand, fracture of the tooth will immediately diminish the threat of lateral movement in the apical fragment.

Appreciable mobility of the tooth necessitates immobilisation by means of a splint which should include two teeth on either side of the injured member. A satisfactory temporary splint can be made in a few minutes at the chairside. A piece of X-ray lead foil approximately $1\frac{1}{2}$ in. $\times \frac{3}{4}$ in. is moulded over the labial and lingual surfaces of the teeth in the area of the loose tooth and cemented in position. Permanent splints are cast in any suitable metal or processed in acrylic resin, Zelex impressions of both jaws being taken and the resultant plaster models mounted on an articulator. A wax pattern for the splint can be carved to allow even distribution of the masticatory forces.

Splints of all types can be cemented in position with oxyphosphate or black copper cement after carefully manipulating the mobile tooth into correct alignment in the arch. Three to four weeks is an average time for retention of the splint and the vitality of the pulp should be checked at intervals before and after removal of the appliance.

A negative response to a vitality test obtained soon after the injury must not be regarded, in the absence of other clinical symptoms, as indication of death of the pulp because recovery of the pulp often occurs when the injury is slight. Should, however, the death of the pulp be established beyond doubt, immediate root treatment avoids the complication of infection of the organic contents of the canal and provision can be made for such a contingency by cutting away the splint in the region of the cingulum of the affected tooth.

In an intact tooth the dead pulp will be sterile at first, but infection is very liable to be introduced via (*a*) the blood stream, (*b*) the lymphatics of a torn periodontal membrane, or (*c*) a new carious lesion.

A dead sterile pulp, left untreated, may not become infected but there is always a strong possibility of root absorption during the ensuing years.

The colour of the crown is not a reliable indication of vitality for many badly discoloured teeth exhibit normal responses to thermal and electrical stimuli whilst restoration of normal colour and translucency may take place weeks or months after the injury. Fish (1948) explains such a happening by suggesting that the blow was not strong enough to rupture the arteries passing through the apical foramen even though the thinner walled veins were occluded or severed. He contends that blood continues to be pumped into the canal and causes hæmorrhage into the pulp tissue and dentine. Eventually normal circulation is re-established and phagocytosis of the broken-down erythrocytes is completed.

When the trauma is severe all apical vessels are instantly ruptured and there is no extravasation of blood into the pulp stroma and hence no immediate discoloration.

(*b*) *Incomplete Calcification of the Root.*—In this subdivision the treatment is identical with that outlined above but if the pulp dies the problems of successful root treatment are greatly magnified.

When confronted by a case in which the pulp has died a choice must be made between the following alternatives:

(1) Extraction of the tooth with (*a*) insertion

of a space maintainer or (*b*) closure of gap by approximation of adjacent teeth and fabrication of a jacket crown to simulate the missing tooth at a later date.

(2) Conservation of the pulpless tooth.

To arrive at a decision the case should be studied from both the radiological and orthodontic points of view.

Should conservation be the choice, apical resection probably offers the best chance of success and this may be carried out under a general anæsthetic soon after the accident. When suitable general anæsthesia is not available the resection should be deferred until the patient is old enough to tolerate the ordeal of the operation under a local anæsthetic and, in the interim period, the pulp chamber is filled with an antiseptic paste to control infection (fig. 1).

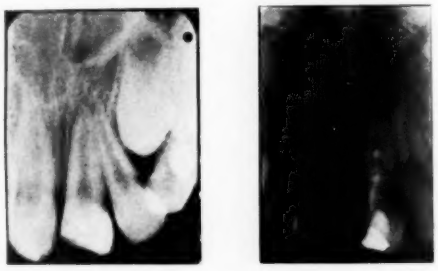

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FIG. 1.—Case illustrating use of root canal paste to control infection in treatment of non-vital tooth with open apex. Although the paste does not fill the canal there are no marked periapical changes after five years.

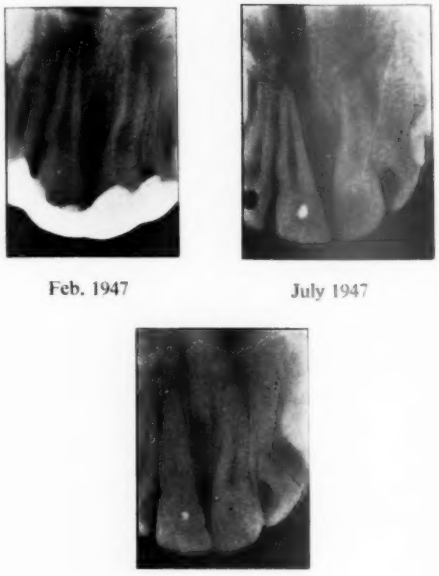
The following formula has been found to give satisfactory results:

Zinc oxide	60 parts	Iodoform	3 parts
Chlorinated xylenol	15 parts	Coumarin	1 part
Ol. caryoph.	15 parts	Benzocaine	0·3 part

Replantation.—Should a tooth be completely dislocated conservation treatment may give a satisfactory result.

We have a case on our records of a tooth with a partly formed root which had been knocked out and which was replaced within five minutes by the parent and splinted in correct position later the same day. In due course the vitality of the pulp was re-established and periodic X-ray checks revealed progressive calcification of the root and narrowing of the lumen of the canal (fig. 2).

In teeth which have been dislodged we hold the opinion that it is courting failure to sterilise the tooth by boiling or by the application of



Feb. 1947 July 1947

April 1950

FIG. 2.—Replantation of tooth in patient aged 8 years 9 months. Radiographs show completion of 1 | root and obliteration of lumen of root canal by progressive calcification. Compare rate of development of 1 | root with normal | 1 root. A small amalgam filling was inserted in the cingulum of the replanted central in June 1947.

strong disinfectants prior to replantation. Such treatment must devitalise the cementum and remnants of the periodontal membrane, making the tooth analogous to a foreign body liable to absorption and/or exfoliation.

It is advisable to wash the tooth in sterile normal saline or, better still, a saline solution of penicillin before replantation and splinting. A prophylactic dose of anti-tetanic serum should be given at the same time.

To decide whether or not the avulsed tooth should be root-filled and the apex removed before replantation in the socket requires considerable clinical experience, as it is impossible to lay down hard and fast rules to cover all circumstances. Replanted teeth may show evidence of varying degrees of root absorption or even exfoliation in the years following the operation.

Summarising Class I cases, any loose tooth should be immobilised immediately and, if it is evident that the pulp has died, all dead organic material should be removed from the canal to avoid the complication of pulpal infection.

Class II.—Fracture of Crown Without Exposure of Pulp

As stated earlier there seems to be less danger of disruption of the apical vessels when part of the crown is chipped off by the trauma. Should the fracture be limited to the incisal enamel the rough edges can be smoothed with discs or stones and a corresponding adjustment made later to the adjacent teeth to improve the appearance.

As in Class I cases the vitality of the pulp must be checked periodically.

When an area of dentine is exposed a large number of unprotected tubules are suddenly opened up to oral fluids and thermal shocks. The pulp of such a tooth may react favourably to stimuli by a deposition of secondary dentine, but there is always a grave danger that degeneration and death of the pulp may ensue. This danger is decidedly greater in children because the pulp chambers are larger and the lumen of the tubules wider.

Various methods of protection have been suggested, most of them devised to retain a non-irritating cement such as zinc oxide and eugenol in contact with the uncovered dentine.

A simple and very secure appliance is a welded incisor band made from 5 × 0·15 mm. soft stainless steel strip. If an electric welder is not available then excellent results are easily obtained by soldering the band with " Easyflo " flux and solder (Johnson Matthey). The band is trimmed to correct incisal length and the bite is checked; the exposed dentine is carefully covered with a stiff paste of zinc oxide-eugenol and the band luted in position with oxyphosphate cement (fig. 3).

Fig. 3.—Two cases showing protection of exposed dentine by stainless steel bands.

As part of the crown is usually uncovered it is possible to check the vitality without removing the band.

An alternative method is to use a Caulk's celluloid crown form trimmed to gingival contour and then filled with soft silicate cement of correct shade. As in the previous technique, the dentine is capped with zinc oxide eugenol cement before manipulating the crown form into position over the tooth. Although a crown form is æsthetically superior to a stainless steel band its use renders it more difficult to make subsequent checks for vitality. There is, too, a lack of permanence unless the crown form is carried well up to the gingival margin with the consequent risk of stagnation areas and irritation to the tissues.

At a later date the temporary appliance may be replaced by a more permanent restoration. This may be a jacket crown, either a shoulder or shoulderless preparation according to the age of the patient, or, alternatively, a gold inlay.

At one time Howe's silver nitrate solution was applied to the exposed dentine and reduced with eugenol. The resultant black stain was very superficial on a non-carious surface and could readily be masked by the permanent jacket crown. However a number of cases of hyperæmia or even death of the pulp occurred following such treatment, although in a proportion of the cases the initial trauma was doubtless responsible for these sequelæ.

Although the silver deposit is considered to have an inhibiting effect on the carious process Atkinson (1948) has shown that the treated dentine is not impermeable to irritant fluids and consequently the use of this drug was discontinued.

Class III.—Fracture Involving the Pulp Chamber

(*a*) Pulp vital. (*b*) Pulp dead. In both (*a*) and (*b*) the root may be either completely or incompletely formed.

(*a*) *Pulp Vital.*—When the root of the tooth is incomplete we are of the opinion that a partial pulpectomy is the best treatment whatever the size of the pulpal exposure. In this the coronal portion of the pulp is removed and an endeavour made to retain the vitality of the pulp in the root by capping the exposed tissue with a suitable material.

The technique employed is as follows:

Preferably the operation is effected under local anæsthesia but general anæsthesia is often necessary for nervous children. Whenever possible the tooth is isolated by means of rubber dam and the area thoroughly swabbed with alcohol and dried with a stream of warm air.

Using a sterile No. 3 or 4 flat fissure bur, the roof of the pulp chamber is removed and the bur is guided down one of the proximal walls of the pulp chamber to a point just below the neck of the tooth, with the engine revolving at a low speed the bur is moved slowly across the pulp chamber as far as the other proximal wall. This removal of the coronal pulp causes very

little hæmorrhage but the cavity produced may be washed with sterile normal saline to remove any hæmorrhagic debris. A small sterile pellet of cotton-wool moistened with eugenol is placed in gentle contact with the cut surface of the pulp and sealed in with a temporary cement. The patient is dismissed for one week with instructions to return at once if in any discomfort or if the cement seal breaks down.

At the next visit, the rubber dam is applied and the tooth and dam again swabbed with alcohol and dried. The cement seal is removed carefully with a sterile bur and the pledget of cotton-wool is lifted out to reveal the healthy-looking cut surface of the radicular pulp. Avoiding any pressure, a soft mix of zinc oxide-eugenol is then carefully teased into the pulp chamber and sealed in with oxyphosphate cement. At this second visit, local anæsthesia is neither necessary nor advisable because the operation is not painful and it is important that there should not be any masking of pressure symptoms during the insertion of the cement.

The cement is replaced at a later date by a more permanent filling material such as amalgam or silico-phosphate cement, always providing that the patient has not experienced any discomfort and the pulp gives a normal reaction to vitality tests.

Some operators prefer removal of the coronal pulp by means of a round bur, whilst others carefully disengage the bulbous portion of the pulp from the dentine wall and cut off the loosened tissue with a sharp excavator at the level of the cervical margin. The use of a fissure bur is simpler and seems to be less traumatic.

Much valuable work has been done in recent years by Zander (1938–49), Teuscher (1938), Law (1942), Slack (1948) and others on the use of calcium hydroxide, for covering the cut surface of the pulp, but it has not been found that this material gives any better results than the two-visit technique described above. It is interesting to note that one case in which calcium hydroxide was used was clinically a failure because the patient had post-operative pain. After removal of the calcium hydroxide and adoption of the technique described the pulp recovered clinically and four years later the pulp vitality was normal, whilst radiographs showed completed development of the root and the presence of a dentine bridge under the zinc-oxide-eugenol cement.

The technique suggested seems to be very much easier and quicker than when calcium hydroxide is used and there is the advantage that the first stage of the operation may be carried out in the surgery under nitrous oxide anæsthesia without applying rubber dam—a matter of some importance in the case of a nervous child.

The cotton-wool dressing absorbs any inflammatory exudate from the amputated surface of the pulp and thus minimises the possibility of undesirable pressure effects.

It may be considered that a pulp cap would give satisfactory results when the pulp exposure is small and of recent occurrence. This may well be the case but a partial pulpectomy is favoured by us for two main reasons:

(1) The infected surface of the exposed pulp is removed.

(2) Excision of the coronal pulp ensures a more effective blood supply to the remaining radicular pulp.

This latter is a well-known surgical principle applied in the amputation of limbs.

The operation is considered to be successful if the following provisions are satisfied:

(1) The tooth is symptomless.

(2) Apical development proceeds normally.

(3) The so-called " dentine bridge " is formed over the amputated end of the pulp.

(4) There is a normal pulpal response to periodic vitality tests.

The shorter the time lag between accident and treatment the better the prognosis but provided the pulp is alive it is well worth performing a partial pulpectomy, even though the time factor is unfavourable, as the following case illustrates:

A girl aged 9 years had fractured a left upper central three months previous to examination and during this period of time a large exposure of pulp had been open to mouth fluids. However, some vitality in the degenerating coronal pulp was elicited, and though prognosis was exceedingly doubtful, the widely open apex was taken into consideration and a partial pulpectomy was performed. Several radiographs taken during the next two years revealed further calcification of the apical part of the root together with irregular masses of radiopaque material lining the root canal. Eventually the pulp died and a small area of bony rarefaction appeared round the apparently completely formed apex. Routine antiseptic dressings and root filling were effected with satisfactory results (fig. 4).

The object of partial pulpectomy is to retain a vital radicular pulp so that calcification of the incomplete root will continue and we have come to the conclusion that success can be anticipated in the majority of cases when the time lapse between trauma and treatment does not exceed forty-eight hours (fig. 5).

When the apex is completed there are two alternative treatments:

(1) Extirpation of the pulp and root filling.

(2) Partial pulpectomy.

In the past we have practised extirpation but recently we have carried out a number of suc-

Jan. 1947

Nov. 1947

Nov. 1948

FIG. 4.—Radiographs of 1 | 1 in a child aged 8. | 1 pulp had been exposed for four months prior to pulpotomy in January, 1947, but, after root calcification had completed in November, 1947, an area of periapical rarefaction was observed a year later.

Aug. 1949

June 1950

FIG. 5.—Radiographs of an uncomplicated case of partial pulpectomies of both centrals of a child aged 8. "Dentine bridge" and calcification of roots is shown.

cessful partial pulpectomies when the patients were seen within a few hours after the accident. However, much further investigation will be necessary before any definite conclusions can be reached on the use of this treatment in teeth with completely formed apices. Teeth so treated must be kept under close observation and the remaining pulp removed as soon as adverse signs and symptoms appear. The chances of successful root treatment are not unduly prejudiced in the event of failure and we feel that in selected cases the attempt to keep the radicular pulp alive justifies the operation (Table I).

TABLE I

Analysis of 92 cases treated by partial pulpectomy during the past seven years for which complete clinical records are available.

Total number of cases treated ... 92 Failures ... 11

Materials employed	*Zinc oxide eugenol*	*Calcium hydroxide*	*Zinc oxide eugenol*	*Calcium hydroxide*
Number	81	11	6	5

If a pulpal extirpation is decided upon this is carried out more in the nature of a very radical partial pulpectomy, no attempt being made to eliminate the apical filaments. Caustic antiseptics should not be employed and the root filling is left fractionally short of the apex. It is hoped by these means to maintain vitality of the apical portion of the pulp and so allow the apex to seal itself off by natural biological processes.

Any permanent restoration on the tooth is deferred for as long as possible. The choice on a still vital tooth lies between a jacket crown with or without a shoulder or a gold inlay with a silicate or acrylic facing. Sometimes so much of the crown is lost that insufficient retention is afforded for an ordinary jacket crown and then a cast gold core with pins for retention is used to build up a stump over which a jacket crown may be made.

(*b*) *Pulp Dead.*—When the pulp is non-vital the problem becomes one of root canal therapy.

CLASS IV CASES.—FRACTURE OF THE ROOT

Fortunately fracture of the root is not very common and as stated earlier it is not usually complicated by a separate fracture of the crown. A convenient classification is as follows:

(1) Fracture in apical third of root
(2) Fracture in gingival two-thirds of root
} not open to oral fluids.

(3) Oblique fracture across line of epithelial attachment involving both root and crown—open to oral cavity.

Whenever any part of the line of fracture is open to the oral fluids the consequent infection precludes any possibility of healing and thus a "Type 3" fracture has very poor prognosis and the only satisfactory treatment is extraction of the tooth (fig. 6).

When the tooth is vital and symptomless in either Type 1 or 2 a splint should be made to immobilise the tooth. In the absence of infection, fibrous or calcific union often takes place and the tooth remains a useful functional member (fig. 7).

When the pulp dies in "Type 1" apical resection is advised but in "Type 2" cases the tooth has usually insufficient attachment to justify the operation, and extraction is indicated.

Naturally there are some border-line cases in which the fracture line is mainly in the crown

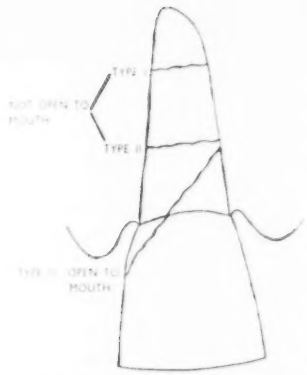
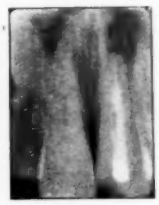


FIG. 6.—Diagram showing three types of fracture of the root.

December 1947



Jan. 1950 Feb. 1951

FIG. 7.—Type III fracture of 1| root. Radiographs taken (1) at first examination, (2) six weeks later with "permanent" splint in position, (3) one year later showing formation of tooth callus across line of fracture.
Note.—|1 pulp died and root treatment was effected.

but passes just below the epithelial attachment in a small area. These should be treated in the same way as for fractures of the crown with the possible addition of local tissue removal to facilitate the technical procedures involved in making a cast base dowel crown after the pulp has been extirpated.

SUMMARY

(1) An attempt has been made to classify the types of injuries suffered by anterior teeth.
(2) A system of treatment has been suggested and outlined for each particular class.
(3) The desirability of early treatment cannot be overstressed.
(4) A simple and effective technique for partial pulpectomy has been described.
(5) Some attempt has been made to indicate the prognosis of each class.

ACKNOWLEDGMENT

We wish to thank Mr. S. Heaton, Senior Technician to the Research Department, Turner Dental School, for the photographs.

BIBLIOGRAPHY

ATKINSON, H. F. (1947) *Brit. dent. J.*, **83**, 205.
—— (1948) *Brit. dent. J.*, **84**, 113.
CASTAGNOLA, L., and ORLAY, H. G. (1950) *Brit. dent. J.*, **88**, 324–330.
FISH, E. W. (1948) Surgical Pathology of the Mouth, 267–268. Pitman.
GROSSMAN, L. (1946) Root Canal Therapy. H. Kimpton.
SLACK, G. L. (1948) *Brit. dent. J.*, **85**, 169–174.
ZANDER, H. A., and LAW, D. B. (1942) *J. Amer. dent. Ass.*, **29**, 737.
——, and GLASS, K. L. (1949) *Oral Surg.*, **2**, 803.
——, and TEUSCHER, G. W. (1938) *Northw. Univ. Bull.*, **39**, 4.

SHORT COMMUNICATION

SOLID TUMOUR OF THE UPPER LEFT MAXILLA

BY W. E. HERBERT, F.D.S., M.R.C.S.ENG., L.R.C.P.LOND.
Professor of Dental Surgery, University of London

C. M., a girl aged 17, was referred (22.2.50) by her dental surgeon, Mr. Elvin Pryor, on account of a painless swelling in the upper left premolar region. The swelling had first been noticed two months previously and had gradually increased in size. The |45 had recently become loose and had been extracted nine days previously. These teeth had been heavily filled in 1948. Swelling had increased further since the extractions.

On examination an obvious swelling was noticed on the left side of the face. Inside the mouth there was a smooth swelling filling the buccal sulcus from the mid-line to |6 region (fig. 1). The mucous membrane was freely movable over the swelling. No fluctuation or egg-shell crackling could be elicited.

In order to determine whether or not the swelling contained fluid an attempt was made to aspirate it. A submucous injection was given and a hypodermic needle inserted. The exploring needle, however, did not give the sensation of passing into a cavity though there seemed to be a variation in the resistance to the needle in different parts of the swelling.

FIG. 1.—Intra-oral photograph showing smooth swelling in the buccal sulcus from the mid-line to the | 6 region (22.3.50).

FIG. 2.—Intra-oral radiographs showing radiolucent area.

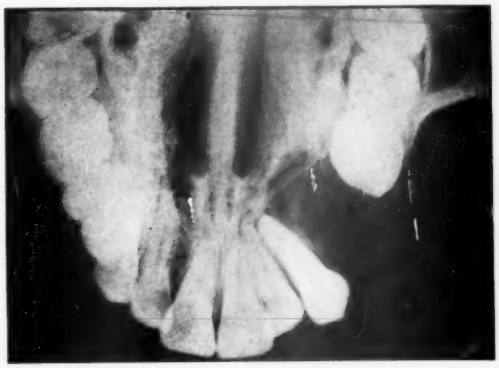


FIG. 3.—Occlusal view.

No fluid was withdrawn and only a trace of blood escaped from the site of puncture.

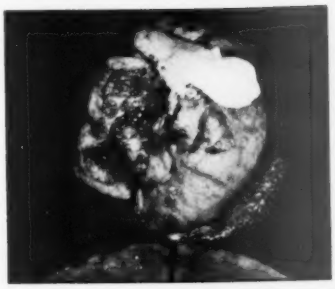


FIG. 4.—Photograph of the tumour after removal with the canine replaced in its correct position (1.5.50).

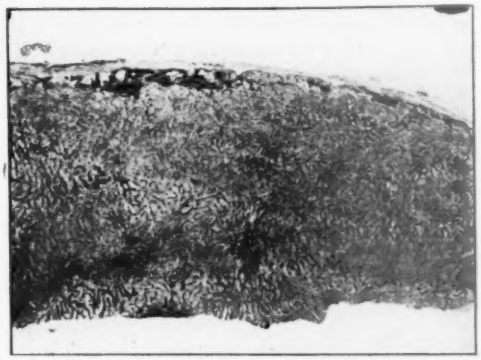


FIG. 5.—Low power view (× 5·5) of section at right angles to surface. At top is seen periosteum covering remains of original cortex.

Radiographs (Dr. Ingram) showed a rounded area of bone destruction in the | 3456 region with expansion of the bone. The deep margin of the lesion was not sharply defined and the pattern of the expanded part showed faint coarse strands of bone with a faint outer margin not like the clear wall of a cyst (figs. 2 and 3). A diagnosis of osteoclastoma was made.

Patient was operated on by Mr. S. H. Wass (1.5.50). An incision was made along the gingival margin from | 2 to | 6, and extended upwards at each end of the swelling. A mucoperiosteal flap was raised from the outer surface of the tumour which was separated from the surrounding tissues by blunt dissection and finally shelled out. The | 3 in close relation with the tumour was removed. The flap was replaced and sutured at both ends, the central space being packed with ribbon gauze dipped in Whitehead's varnish. The specimen was solid, slightly lobulated, pale pink in colour and 3 × 3 × 2½ cm. in size (fig. 4). It was photographed and then sent for section.

Report on Specimen by Professor Martin A. Rushton

The specimen consisted chiefly of dense fibrous tissue in which large numbers of osteoid and partly calcified trabeculæ were present. Two opposite surfaces were covered with periosteum and with the remains of the original cortex of the maxilla (fig. 5). This bone was being absorbed on its deep surface and replaced by fibrous tissue in which, in turn, large numbers of osteoid trabeculæ were forming (fig. 6). Some of these were partly calcified, and where calcification was most complete were undergoing absorption in the presence of considerable numbers of giant-cell osteoclasts (fig. 7). The arrangement of these tissues was to a considerable extent in concentric layers, fibrous tissue, osteoid trabeculæ, calcified trabeculæ, osteoclasts and once more fibrous tissue succeeding one another repeatedly from without inwards. In the portion shown in fig. 5 the sequence of layers is repeated about four times on the right side. The mass was not separated from the surrounding bone by any capsule.

Opinions will differ as to whether the condition should be called an ossifying fibroma or monostotic fibrous dysplasia of bone. The age, absence of capsule, site, and many of the histological features such as those displayed in fig. 6 are consistent with the latter diagnosis. The very numerous giant cells in relation to calcified trabeculæ in limited zones are less characteristic. The continuous resorption of calcified trabeculæ with presence of rather numerous large osteoclasts, at the same time that vigorous apposition of osteoid is proceeding, is not uncommon in fibro-osseous enlargements of the jaws which have been called by both titles and several more. Unusual features of the present specimen are the spatial arrangement of these activities in layers and the fact that though the osteoid trabeculæ are calcifying they are apparently resorbed directly calcification takes place.

Fig. 6.—Osteoid trabeculæ forming in fibrous tissue. At the lower part of the figure the trabeculæ are becoming calcified. Section cut without decalcification. × 85.

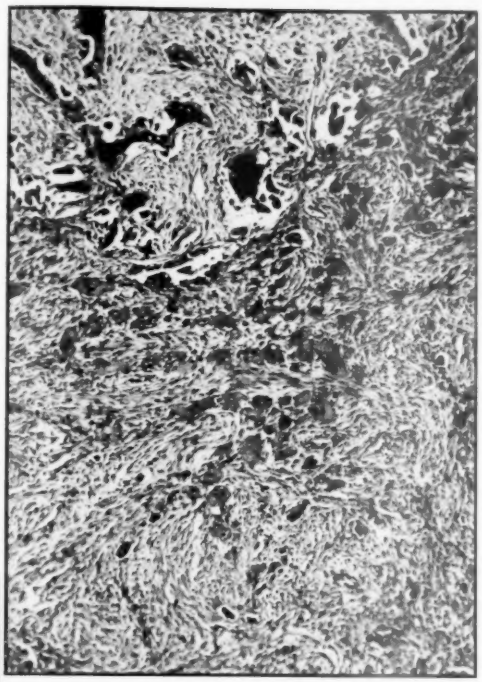


Fig. 7.—The calcified ends of new trabeculæ are being absorbed and there is a contiguous zone containing many giant cells. A layer of fibrous tissue follows and is succeeded by other layers resembling fig. 6 and fig. 7 alternately. × 70.

Acknowledgments

Thanks are due to Mrs. M. Small and Mr. J. E. Hutchinson for the photographs and photomicrographs illustrating this communication.

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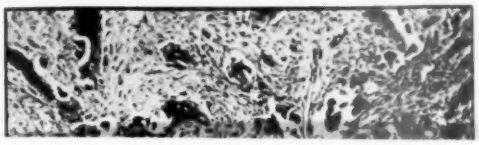
REPORT ON SPECIMEN BY PROFESSOR MARTIN A. RUSHTON



The specimen consisted chiefly of dense fibrous tissue in which large numbers of osteoid and partly calcified trabeculæ were present. Two opposite surf... ...covered with periosteum and with the rem... This... and... larg... (fig.... whe... goi... nun... arra... exte... trab... mo... pea... in f... tim... fro...

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Cusps, stainless steel
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Flasks
Ffask compresses
Flask tongs
Foil, tin
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Glasspaper rolls
Gold testing outfits
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Knives, Wax
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Rotafiles
Separating solution

SUNDRIES (*Continued*)

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Spatulæ, Chataway
Stone trimmers
Strengtheners
Teeth
Metrolux
Metrocryl
Replica
Vita
Bios Shell Crowns
Thermometers, desk
Thermometers, various
Timers, second and minute
Torch, Flamemaster
Tweezers
Waste Traps
Wax, toughened modelling
Wax, sticky
Wire, S.S, G.S, V.M, etc.

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Engines
Facial Pads
Heaters
Heaters, immersion
Lathes
Lights, operating
Light fitments
Motors
Process Timers
Sterilizers
Sterilizers, oil
Time switches
Vibrators
Viewing Boxes

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X-RAY LIST

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Cellulose matt sheet
Darkroom Equipment
Darkroom Lamps
Developing Equipment
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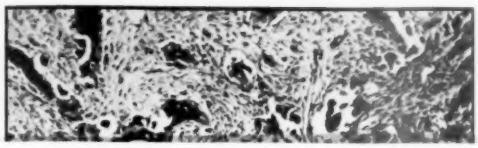
Film Dispensers
Film Receptacles
Hangers, various
Immersion Heaters
Stapling Machines
Thermometers, various
Timing clocks, alarm
Viewing Boxes

REPORT ON SPECIMEN BY PROFESSOR MARTIN A. RUSHTON

The specimen consisted chiefly of dense fibrous tissue in which large numbers of osteoid and partly calcified trabeculæ were present. Two opposite surfaces were covered with periosteum and with the



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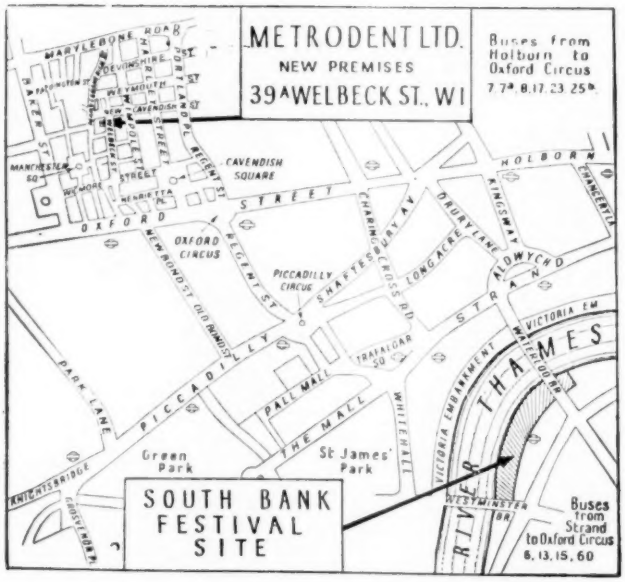

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BRITISH DENTAL JOURNAL

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EASING THE BURDEN

In the early days of the school dental service, the British Dental Association repeatedly urged upon local authorities the essential economy of providing each of their dental officers with a competent chairside assistant. This advice was, at first, disregarded by a number of authorities who were more concerned with the aggregate cost of the service than with its efficiency, and it was only gradually brought home to them that it was penny wise and pound foolish to allow a highly qualified dental officer to spend part of his time doing secretarial and other incidental work which could be done equally well by other persons. The increased popularity of the school service and the consequent demands made on the time of dental officers, coupled with the steady pressure exerted by the Board of Education in those early days, eventually compelled even the most backward authorities to realise that it was true economy to provide a dental officer with adequate assistance in order that he might devote the maximum time to his strictly professional work. This process has now been carried far. Not only have local authorities recognised the value of the work of chairside assistants, but some of them give increments of pay to those who have proved their ability and keenness by obtaining the certificate of the British Dental Nurses and Assistants Society. It is, incidentally, greatly to the credit of the Society that, in a calling in which the loss by marriage must necessarily be heavy and in the virtual absence of any organised courses of training, no less than 672 chairside assistants have presented themselves for the examination in the seven years in which it has been held. This good beginning is an example of what can be accomplished by concerted action. It is, however, no more than a beginning. Making the fullest possible allowance for the many highly competent assistants who have been trained by their employers and have not felt it necessary to take an examination, it is still clear that very considerable leeway will have to be made up before the position is reached in which every operating dentist has the assistance of an adequately trained assistant.

The size of the problem will be better appreciated when it is remembered that the average working life of a chairside assistant is not likely to be greatly, if at all, in excess of one-fifth of that of the average dentist, and that we can look forward to an annual intake of some 500 newly qualified dentists, all of whom will, in turn, need the help of chairside assistants. For some time to come, it will obviously be necessary that most of these latter should be trained by their employers. It is, however, abundantly evident that many dentists would be very much better served if their assistants had had the advantage of systematic training, and there is little doubt that, in the course of time, such training will come to constitute the principal means of entry to the calling of chairside assistant. It is of interest to note, in this connexion, that both of the dental schools in Sweden run such courses of training for chairside assistants, and that, as part of their training, they assist the dental students who are doing operative work. The benefits of such a scheme are two-fold. Not only do the trainees obtain valuable practical experience but, almost more important, the budding dentist learns at the outset of his career how greatly he can be helped in his daily work by the intelligent co-operation of a trained assistant. A scheme of this kind is, after all, almost the exact counterpart of that under which medical students and nurses are trained in the same hospitals—a system, the history of which is shorter than is generally appreciated.

The Committee of Enquiry, which reported on the training and conditions of service of chairside assistants, recommended a variation of this system of training. They envisaged a theoretical course of six months, followed by a further probationary period of six months in public dental service or with a private practitioner prior to the probationer sitting the examination for her certificate of proficiency. The object of both schemes is to provide the trainee with an adequate background of theoretical, if elementary, knowledge of the underlying principles which she will be expected to observe in her practical work in the surgery. There can be little doubt that a girl trained in this way will be

of much greater assistance to her employer than she would be if she had been trained empirically in the day to day work of a private surgery. The time may still be far distant when all chair-side assistants will have had the benefit of such systematic training, but it is reasonable to hope that, a start having been made, progress in this direction will be accelerated.

The problem is the now, unfortunately, familiar one of accommodation and a sufficiency of teachers. These difficulties can only be overcome in gradual stages, but the comparative shortness of the training period renders them less intractable than they are likely to be in the case of other ancillary workers, such as, for instance, the New Zealand Nurses. It is encouraging, in the meantime, to know that dentists and public authorities alike have not been slow to appreciate the value of trained assistants. It is safe to predict that for some long time to come girls who have been through a recognised course of the kind indicated will have no difficulty in obtaining employment in an interesting and satisfying career.

These invaluable ancillary workers in the field of dentistry can do much to increase the efficiency of the profession as a whole and to make the service of its limited numbers even more widely available than they are at present. It is, therefore, of the greatest importance that the facilities for their systematic training should be extended as rapidly as circumstances will permit.

NOTES AND COMMENTS

XIth International Dental Congress

A FORM of application for membership of the International Dental Congress to be held in London in 1952 is enclosed with this issue of the Journal and members of the profession can greatly assist the organising committee of the Congress by returning the form, duly filled up, as soon as possible. Early application for membership will only entitle the applicant to the benefit of a reduced rate of subscription but will also ease the burden on the secretarial staff by spreading the routine work entailed in the enrolment of members and the preparation of each individual member's dossier of documents relating to the Congress. A copy of the relevant rules of Congress will be found on page 37 of the Supplement.

Results of Regular Treatment

A STRIKING illustration of the extent to which dental disease can be controlled by regular inspection and treatment is provided in the report of the Dental Superintendent to Marks and Spencer Ltd. Shortly after the inauguration of the National Health Service the firm instituted a six-monthly inspection scheme for their employees, and, in his report for the year ended March 31, 1951, Mr. Levi draws attention to a steady rise in the percentage of the 22,672 employees who are found to be dentally fit. This figure rose progressively from the 25 per cent recorded at the first inspection to 43·5 per cent at the final one recorded in the report. Concurrently with this there was a drop in the average amount of treatment required by those employees who were not dentally fit—the average number of fillings declined from 2·3 to 1·5, extractions from 1·15 to 0·67 and dentures from 0·36 to 0·19. Since there is a considerable turnover in the labour force employed by the firm it can safely be assumed that the figures for those who have been in the scheme from its inauguration would be even better than those we have quoted. There are many valuable lessons to be learnt from this interesting experiment in the dental care of a section of the community whose susceptibility to dental caries is probably higher than that of others.

Dentistry in the United States

THE American Dental Association has issued a 42-page booklet which contains the results of a survey of the profession in 1950 compiled from returns furnished by over 4,000 dentists to a questionnaire circulated to 20,000 dentists in the United States. The returns have been carefully analysed and the results are summarised in a convenient set of tables and graphs. Among the figures which are of special interest to British dentists are those which show that 40 per cent of the total population of the United States received some form of dental treatment during 1950. This figure, taken in conjunction with others which show that 90 per cent of the patients of one-third of the dentists returned during the year "to receive all recommended dental care," provides a striking illustration of the difference between the demand rate in the States and Great Britain. This difference is reflected in the figures relating to individual items of treatment; an analysis of the work done for 29,574 patients during one week shows that for each examination, 5,033 in all, there were 0·73 radiographic examinations—2·55 films; 0·98 prophylaxis; 0·88 extractions; 2·71 fillings or inlays; 0·24 dentures, and 0·12 crowns or bridges; 0·23

orthodontic treatment ; fluoride or other preventive treating, 0·15. The average dentist worked for 48 weeks in the year and spent just over 42 hours per week in his office—33 hours at the chairside, 3·8 hours in the laboratory ; the balance being made up of other work, 2·2 hours and free time, 3·2 hours. It is a little surprising to find that as many as 34·4 per cent of the dentists employed no full-time ancillaries such as hygienists, technicians and assistants. In this connexion it has to be borne in mind that only 3·7 per cent of all the dentists employed technicians—a state of affairs very different from that which obtains in this country. On the other hand full-time chairside assistants were employed by 64 per cent of the dentists and full-time dental hygienists by 4·5 per cent—a further 2 per cent employed hygienists part-time. Each dentist saw on the average 48·7 patents per week in 56 sittings, each sitting occupying an average of 35 minutes chairside time. As might be expected the number of patients varied in direct relation to the number of ancillary workers employed in the practice—the average of 37·8 patients per week in those in which no ancillary workers were employed rising to 63·8 in those employing two such workers. Other interesting figures show that although non-salaried dentists made up 94·7 per cent of the total only 3·1 per cent were in partnership or group practice. The number of women dentists in the U.S.A. has declined to a figure less than 1 per cent of the total number, and one-third of them are employed as orthodontists or pedodontists as against 4·3 per cent of all males.

A Matter of Seniority

NOTWITHSTANDING that the oldest member or the oldest inhabitant is not, or has not been, necessarily the most useful or most ornamental of his fellows, there is always something of interest about him. The mere fact of his seniority seems to add weight to his opinions however much his younger contemporaries may in their hearts be inclined to regard him as hopelessly out of touch with modern thought. Journals, though not altogether immune from the perils of age, can keep in step with the changing rhythm of events and continually adapt themselves to alterations in intellectual environment. A claim to be the oldest is, in their case, a proof that they have not been content to rest on their laurels but have been, as it were, continually renewing their youth. This is certainly true in the case of our esteemed contemporary, *Dental Items of Interest*. The claim it makes on its wrapper to be "the world's oldest dental journal" cannot, however, be admitted since the *British Dental Journal*, itself a continuation of the *Monthly Review of Dental Surgery*, first published in 1873, has been published continuously since it was founded in 1880, six years before *Dental Items of Interest* commenced its distinguished career. *The Revue Odontologique* has also a long record, having first been published in 1879 as the *Gazette Odontologique*—a title which was changed to the present one in 1882.

CO_2 and Decay in Teeth

THE letter from Mr. Nelson in the Journal of August 21, on the effect of CO_2 spray, has reminded a correspondent that at the meeting of the Odontological Society on January 4, 1864, Spence Bate read a paper (*Trans. odont. Soc. G.B.*, **4**, 40) on the cause of decay in teeth in which he concluded that the decomposition of animal tissue produced CO_2. "The creation of this acid within, as it were the tissue itself and therefore brought in its nascent condition into juxtaposition with the salts of the tooth, must act with more direct power and reduce the salt to a soluble condition. The removal of each atom of phosphate of lime in its turn exposes more of the animal tissue of the enamel to decomposition and an increased chemical action is superinduced." Spence Bate placed a section of a tooth in distilled water and passed into it CO_2 generated in another vessel. The result was that in a week or so, nearly, if not quite all, the lime was removed.

Dr. Lindsay's Portrait

MEMBERS in Scotland will be interested to know that the portrait of Dr. Lilian Lindsay by Mr. T. C. Dugdale, R.A., is to be hung in the autumn exhibition of the Royal Glasgow Institute of Fine Arts which opens at the end of the present month.

Fifty Years Ago

From the "Journal of the British Dental Association," September 16, 1901.

EVERY dentist must know that the usual error on taking a bite arises from the fact that the patient has a tendency to unduly protrude the lower jaw. Some become conscious of this before the teeth actually occlude, others do not, and the result is that a false bite is obtained. With the majority the correction is only made when the lower incisors are felt by the patient to be occluding with or projecting beyond the cutting edges of the upper incisors. Yet this never happens to these patients during the normal movements of the mandible, that is to say, during the movements of mastication. It is therefore obvious that this "sort of step or several steps," this "forward closure," which Messrs. Tomes and Dolamore take to be "the usual thing," really indicates nothing more than that the subject was aware of the fact that he was protruding his jaw abnormally and the "steps" in the tracings record his abrupt efforts to readjust it.

From a paper on "Motions of the Mandible" by T. E. Constant.

LETTERS TO THE EDITOR

THE D.E.B. MIGHT HELP

SIR,—Those of us who are realists will admit, whatever their private and wishful thinking, that the National Dental Service is now a permanent, if doubtfully beneficial, institution. That being so, and since the majority of dentists participate in it, it would be of inestimable value to the community, the profession and the Dental Estimates Board if better relations might be established between that body and those dentists who, must perforce, practice under its administration.

Almost innumerable instances of disagreement with its decisions, and resentment at what appear to be its arbitrary and sometimes unjust rulings regularly appear. On all sides there is a growing feeling that the considered views of the conscientious dentist are ignored or discredited by those who control the seemingly unsympathetic machinery of the Board. Whether this is so or not, the dissatisfaction at present affecting dentists is a serious impediment to the working of the Scheme. If the Service is to operate with the greatest ease, providing the best treatment through a contented profession, the prevailing sense of frustration and ill-feeling must be removed. Men of integrity and experience—and despite the utterances of the daily Press, most dentists can claim the description—not unreasonably expect to be treated as such. Indeed, were more respect shown for the qualities acquired by professional training, difficulties would begin to vanish.

If the Dental Estimates Board works to a system, approving and disapproving estimates according to a wisely considered, an equitable and preconceived plan, is there any reason why this should be kept so secret? If, too, the Board aims to obtain the highest for the greatest number—and we like to think that this is one of its ideals if not its statutory duty—is there any reason for its moving, Godlike, in mysterious ways? A workable system is best worked by the parties engaged in it, both knowing its methods.

If dentists were told which type of estimate is likely to be accepted, on what grounds others are usually rejected, the rules prevailing at Eastbourne for granting or refusing more expensive treatment, the size or coefficient of mastication of partial dentures usually allowed—if an explanation of such simple things were forthcoming, along with a solution of many existing mysteries and the nature of the plan which influences the Board's decision, invaluable confidence in its authority would soon be established. Or is one asking for a privileged insight into esoteric circles?

In one's less indignant moments it is difficult to believe that those who control the conduct of more than three-quarters of the profession do not desire harmony and co-operation with mutual respect. Nor can one imagine that they do not wish to keep alive the ethical and traditional spirit of dentistry. At other times it is difficult to conceive methods more inept for producing these desirable ends.

We all wish only to work peacefully in our surgeries on amicable terms with whatever authority we must, *faute de mieux*, accept. Few of us are anxious to test our opinions by the tedious means of appeal to a dental officer or Tribunal. If the D.E.B. will unbend, helpfully explain its system, advise us on procedure and show a practical willingness to help, the Dental Service may well be a credit to all concerned with it.

Too frequently dentists seek approvals in complete ignorance of how they will be considered. Too often they receive peremptory rejections with no fuller reason given than that "the information provided does not justify the expenditure of public funds." By now we mostly know what we may not do—and would welcome advice in what we can hope to do. If the Board will acknowledge—as its members must privately admit—that nearly all dentists are attempting to do good work with the minimum of obstruction, that when they submit an estimate it is not alone to gain a fee but to provide what they regard as necessary treatment—if it will make this gesture, complaints on both sides may well diminish to inconsiderable proportions.

Let us be told why and how our cases are considered. If the system is just and equitable its publication can only do credit to the Board. Since, despite the enormities of a few of us, we are not all potential delinquents, publication of frank guidance would forestall many unwitting "transgressions," while being the first step to a better mutual understanding. Until and unless steps to create goodwill are taken the bureaucratic machine will continue to transform ethics into regulations, patients into cases and differences of clinical opinion into offences.

Yours faithfully,

EDWARD SAMSON.

7 *Poole Road,*
Bournemouth.

ALLERGIC REACTION TO LOCAL ANÆSTHETICS

SIR,—As regards the untoward effects of local anæsthetics, described by Professor R. H. McKeag in *Brit. dent. J.* (1951), **91**, 74, I feel some doubt as to their allergic nature. Allergic responses are due to some form of reaction between an antigen and antibodies. Local anæsthetics act *in se* in no instance as antigens (allergens). Allergy to these drugs is supposed to be produced by the formation of a protein-procaine-complex. Such complexes are called chemospecific antigens, their chemospecifity being determined in this case by the procaine group. After sensitisation by this complex has occurred, allergic responses may be excited by procaine and other local anæsthetics that are derivatives of p-aminobenzoic acid. It is a well known fact that high grade sensitivity cannot be attained by using chemospecific antigens even in experimental animals that are the most suitable for the study of allergy (guinea-pig, rabbit). In man the most marked symptoms of allergy to local anæsthetics are displayed on the skin. Unfortunately, the cutaneous sensitivity to local anæsthetics of Professor McKeag's patients was not tested and the absence of any such evidence renders it impossible to say that they were allergic to procaine. The single item in the report in favour of the allergic nature of the phenomena is the fact that in one patient they were successfully combated by administering an antihistamine drug. However, in my

opinion, this is not sufficient proof of the allergic nature of the observed phenomena. I had occasion to observe for some time two patients with marked cutaneous allergy to procaine. The first one was a dentist in Vienna, suffering from bullous eruptions on the skin after contact with the smallest quantities of procaine, or other derivatives of p-aminobenzoic acid. He was, nevertheless, appendectomised under local anæsthesia with procaine, without any disturbance. Similarly, the second patient was given immense quantities of procaine for repeated sacral blocks, without any general symptom being excited. In some instances, after the sacral block cutaneous eruptions appeared in distant regions (face) which had formerly been in contact with procaine. This reaction is due to an increased local sensitivity of the skin due to the previous contact with procaine, and was excited by small quantities of the drug resorbed from the sacral area and carried by circulation into the skin of the face. In both patients, the allergy to procaine was restricted to the skin.

Sometimes untoward effects occur after local anæsthesia and it is not always possible to explain the mechanism of their production. In some instances we have to deal with conditions which are due to an inverse reaction to small dosages of epinephrine (suprarenine, adrenaline). In these there is a fall instead of a rise in the blood pressure (Dale) which is increased by the imitation effect of procaine. From the excellent description of Professor McKeag I am unable to say whether or not this or a similar mechanism was operating in his patients.

Inability to explain the mechanism of the observed untoward effects is, in no instance, a justification for regarding them as allergic. Allergy must be proven by proper tests. In high grade allergy—and the effects described would be manifestation of a high grade allergy—even passive transmission is possible. I can, however, see no proof that the effects described were allergic ones and to denote them allergic responses without adequate proof contradicts well defined medical notions.

The incidence of the untoward effects following inferior mandibular block is due either to the high vascularity of the pterygomandibular region and consequent rapid resorption or/and at least partial—though unintended—intravenous injection of the contents of the ampoule. In the highly vascularised area rapid resorption occurs, displaying consequences similar to the intravenous injection of the drugs in minimal quantities. This is one of the reasons why untoward effects after local anæsthesia are more often seen in dentistry than in other operative disciplines.

Yours faithfully,

Stomatological Clinic of the University, Debrecen, Hungary. P. ADLER, *Asst. Professor of Orthodontics, Head of the Clinic.*

DEPOSITION OF CALCULUS

SIR,—In his letter of September 4 Mr. Rosenstrauch has criticised parts of my review on recent work in these laboratories. I referred to a number of published papers in which the evidence for any inferences is set out in detail and slides of some of the findings were shown at the Annual Meeting. It would be helpful to know (1) if Mr. Rosenstrauch has read these papers in their original form and, if so, how he would otherwise interpret the data on which they are based ; (2) the case details, recording methods, amount of material, periods of observation, etc., on which Mr. Rosenstrauch's own statements are based ; and (3) his reasons for assuming that supra-gingival calculus has no part in pocket formation.

Yours faithfully,

King's College Hospital Medical School, Denmark Hill, London, S.E.5. J. D. KING.

PREVENTION OF DENTAL DISEASE

SIR,—I have read with great interest the report of the symposium on the Prevention of Dental Disease but have searched in vain, and with disappointment, for any reference to the psychological factor as a cause.

Even in your editorial article you do not include the psychologist in your category of "ians" and "ists."

I am reminded of a conversation with a professional friend, who opposed the idea of food being the cause of caries, as his boys (twins) were brought up together and fed on the same dishes but one boy had many teeth filled, while the other's teeth were quite sound.

"And have they identical temperaments," I asked. "On the contrary," he replied, "one is lethargic and the other energetic." "Well," I queried, "don't you think the keen boy cleans his mouth with his tongue more than the other?" He agreed that such was the case.

It is claimed that the debris of coarse food does not remain in contact with the teeth so long as that of finer food.

Is this due to the extra saliva produced by the greater mastication of rough foods, and to this saliva being better able to permeate the coarser mass?

Speaking empirically, I would say that after eating either types the food traps are equally filled.

Subsequently the tongue and saliva tend to dislodge the debris, but is not the saliva a very important factor in achieving this.

I should like to hear that research work is being carried out to determine the condition of saliva in disease.

What changes, both physical and chemical, take place in different diseases?

Are they sometimes symptomatic? May I ask Mr. Miller if he thinks his method of filling fissures with copper cement would be more successful if it followed the application of sodium fluoride.

And to Mr. Sykes I would say that I should not object to my *vis-à-vis* fingering the bones from which he wishes to gnaw the meat, but I should dislike seeing him suck his fingers afterwards!

Yours faithfully,

St. Anthony's, Corbett Road, Ryde, I.W. WILFRED E. GRIFFIN.

NUTRITION AND CARIES

SIR,—Professor Boyes in his contribution to the Symposium says, "It would be far from the mark to think of caries as a nutritional disease when there can be no doubt that it is a bacterial one. Yet the two must be connected if our evidence so far is correct." May I suggest that the connexion could be an ecological one?

Of the field of ecology, Julian Huxley stated that a study of any one of the species must be extended to the entire ecological community of which the species is a member. *B. acidophilus* and *odontolyticus* are members of the same ecological community as their human host and are intimately related to the same nutrition cycle.

The normal functions of bacteria in the nutrition cycle are those of (1) root nutrition of the plant, (2) assisting in the digestion and absorption of food by the animal and human host, (3) breaking down the residues, and (4) synthesising the end products of the third phase in preparation for the first phase of the next cycle. There are many examples in which an organism is found to operate in more than one phase of the cycle. An organism, under certain circumstances, may cease to play its part as builder and sustainer (phase 2) and start the process of demolition (phase 3). Under some new stimulus, or it may be the withdrawal of an inhibition, the organism adopts its other role of removing the cadaver. The process can be reversed—the tubercle bacillus will begin to move out under ecological influences, particularly nutritional ones. The improvement in children's teeth in wartime is another example of reversal of the process of demolition.

Bacteria are biochemical laboratories. In the healthy environment they manufacture a constructive commodity. But disturb the normal ecological pattern: let there be a deterioration of soil fertility below a certain capital reserve, or an attempt to load a soil with more plants, animals and humans than it can healthily sustain and there follows a disturbance of the balance between predator and pest. Add further interference by food refinement and these laboratories turn over to manufactures of a destructive order, which set in motion the degenerative diseases. Of special interest to us is the dental degeneration which we see as a bacterial attack upon the enamel armour.

Dental caries from this viewpoint would be a nutritional disease with a bacterial mechanism.

Granville Road, Yours faithfully,
Leicester. EVERARD TURNER.

IMPRESSION TECHNIQUE

SIR,—The following observations on the recent series of articles on impression taking may be of interest to some of your readers.

After having been instructed in most of the methods mentioned, and having practised them to some extent at dental school, I qualified last year and went straight into a very busy practice. To my horror I found that I was expected to take all full impressions in plaster of Paris in stock-trays. The plaster used was ordinary stuff from the workshop, mixed with as much water as seemed sufficient, and with a pinch of cooking salt added. Models were cast in plaster again, stone being used only in certain special cases. Any scientifically trained colleague will be able to imagine my feelings when faced with the necessity of having to lower myself to using these methods. However, I have watched the results very carefully in a very substantial number of cases and they are as good as anyone might hope to achieve by the most scientifically accurate methods. Suction, even in some very awkward cases, is first class, and any faults which do occur are almost always traceable to my imperfect bite-taking.

This is, of course, in no way meant as calling into question the rightness of trying to devise techniques founded on a scientific basis. Perhaps part of the answer to the question posed by my present technique is that we have a first-class technician in charge of the workshop, whose skill eliminates some of the faults arising from our primitive impression technique.

Yours faithfully,

35, *Mayfield Gardens,* M. M. GOLDENBERG.
London, N.W.4.

ALGINATE IMPRESSIONS FOR FULL DENTURES

SIR,—As a great enthusiast for Zelex for full dentures I was delighted to see Professor Fenn's paper (*Brit. dent. J.*, **90**, 316). There are, however, certain small differences between procedures under hospital conditions and those in busy suburban practices and a few additional notes may be of value.

For the tray, instead of the rather expensive shellac tray, one made from old gramophone record, as suggested by J. H. Badcock, is equally efficient, stronger, has a conveniently higher working temperature and is a great deal less expensive. Usually a notice in the waiting room that one has a use for old records, brings in an ample supply. When consumption exceeds the supply brought by patients an advertisement in the local paper offering 1s. 6d. per dozen will bring one all that one wishes—incidentally, for the gramophone enthusiast, some very interesting veterans. A gramophone tray has the advantage of having a thicker edge. If instead of cutting the periphery just short of the muscle margin, it is rolled a good quarter of an inch short of the most extreme position of the muscle attachment, a fine clearly marked muscle-trimmed periphery can be obtained. It takes but a moment to prepare the edge of the tray in this way. Trays often have to be thinned out much more in the lower incisor and pre-molar regions than is normally imagined, and it is often desirable to reinforce the tray in this area by rolling the excess of the impression material back over the ridge rather than cutting it back. The wire handle of the tray should be stepped up to clear the lip. The tray, after adaptation, is dried and coated with ordinary pink wax. This wax has the advantage of melting at a lower temperature than sticky wax so that the tray is less likely to be deformed. Zelex never becomes detached either from a metal tray or from a special tray so waxed providing the pink wax is warmed to a liquid state when the tray is filled.

I have found it desirable to have the tray rather closer fitting than Professor Fenn suggests. This has many advantages: (1) economy of material; (2) the smaller amount of alginate used renders it less likely that any volume change that may take place in the material between the impression and the casting of the model will affect the subsequent case. The Zelex can be drawn out at points to the finest possible film. The tray can be fitted to the model as closely as is possible, and providing the tray is short by a good quarter of an inch of the periphery for the muscle margins to be recorded, there is no reason why the rest of the impression should not be as thin as it is possible to have it.

I have been unable, after several experiments, to find that the immersion of the alginate in alum solution has any advantage whatever. In view of the marked changes

taking place in the alginate, immersion of the impression in an aqueous solution of any sort seems to me beset with a hazard quite unjustifiable by the clinical results.

In practices where impressions are taken after the workshop has closed, Zelex impressions present serious difficulties. The Hydrophor used in storing dentacoll impressions is, as shown in the reference of *J.A.D.A.*, **33**, 19, perfectly useless. Keeping the impressions moist, immersing them in water, or in any other way was found completely unreliable and any such attempt as the *J.A.D.A.* article suggests is fraught with greatest hazards.

The way of dealing with this was discovered quite by accident (*J. dent. Ass. S. Afr.*, 1948, **3**, 510). Wishing to take some models to the B.D.A. meeting at Liverpool (1948) I immersed some uncast impressions in tins of motor oil. Not only were the impressions in perfect condition at the meeting, but a week or so later they were still in absolute by perfect condition with texture and every other physical appearance perfect. Since then all impressions, not immediately cast, have been subjected to the same treatment. The impressions are put, as they are taken, into large bowls of motor oil. Where a receptacle contains many impressions, the names are marked on them with copying ink, or pairs of impressions are joined together with an ordinary label with the patient's name on it. The names are quite readable when the impressions are taken out of the oil. Draining off the heavy motor oil does not cause any difficulty. The impressions are set to drain for a moment, washed under the tap and cast in the ordinary way and no trouble whatever has been experienced at any time.

The method can also be used for inlay or bridge impressions, and cast gold pieces go to place from impressions so preserved, in some cases for many days before casting, with perfect exactitude.

Liquid paraffin might be used for the same purpose.

It is of the utmost importance that the impression should be put into oil immediately it is removed from the mouth.

For timing impressions the Kodak Dark Room clock is used. This has many advantages, being accurate and extremely hard-wearing. This is fitted with a bell, which calls the operator's, nurse's or patient's attention to the fact that the impression has completely set and should be removed. Egg-timers are inclined to get knocked over and broken.

If the impression is of the correct consistency when inserted, it will be too soft for muscle trimming for the first 60 seconds. At 60 seconds the muscle trimming is started, and completed within about 30 seconds. At the same time, in the case of an upper, any material that has gone beyond the post-palatal edge of the tray may be removed expeditiously with a teaspoon. Muscle-trimming being complete, a nurse may hold the tray in place until the setting is complete—in the case of an edentulous mouth five minutes, in the case of a partial eight minutes.

A small commercial self-blowing gas blow-pipe sold for watchmakers and others, at the price of 2s. 6d., is very useful for warming the depths of the tray.

The quantities of Zelex to be used can be measured conveniently in teaspoonfuls of liquid balanced by the appropriate amount of powder—for full upper impression 1½ teaspoonfuls, for a full lower 1 teaspoonful, and for partial dentures 3 teaspoonfuls of liquid are usually sufficient. The teaspoon must be absolutely full and filled to the brim in every case.

In the case of an upper, after the quantities have been measured and put into a rubber mixing bowl—unlike Professor Fenn, I find a small mixing bowl much more convenient with these very small quantities—half a teaspoonful of water is added. This makes the material for the upper impression just slightly thinner and so prevents the material exerting a back pressure on the tray, allows it to flow more delicately to the extreme edges of the periphery, and avoids the use of excessive bulk. In edentulous cases, the consistency of the lower and upper impressions should be slightly different.

The practice of using unmodified stock trays and having great thick masses of Zelex, in addition to being wasteful, brings with it all sorts of errors that are commonly reflected in the finished cases.

It is almost safe to say that if more than three teaspoonfuls of liquid are used in mixing a Zelex impression the impression should be discarded.

Yours faithfully,

Warwick Lodge, R. N. BRAGG
33, *Gresham Road, S.W.9.*

OPERATING STOOLS

SIR,—May I, through the courtesy of your columns, advise members that they can sit down to work 90 per cent of the time, as I do, on a specially designed, made-to-measure, mobile operating stool.

The inside leg measurement is required for making the stool to individual needs, and the cost is five guineas each.

Yours faithfully,

214, *Church Lane*, A. J. SEYMOUR.
Kingsbury, London, N.W.9.

Reviews and Abstracts

NITROUS OXIDE—OXYGEN ANÆSTHESIA. Third Edition. By F. W. Clement, M.D. London : Henry Kimpton. 1951. Pp. 369. Illus. Price 46s.

In the third edition of this book the general scheme has been followed, but with some additions and enlargements, particularly in such sections as the technique of administration, carbon dioxide absorption and endotracheal intubation. As before, the subject of nitrous oxide-oxygen anæsthesia has been exhaustively treated. Every seemingly possible aspect is dealt with and sound advice and explanation are forthcoming to help both novice and expert.

The difference in outlook between British anæsthetists and some in the United States on the use of nitrous oxide-oxygen in major surgery, a divergence less pronounced than formerly, is still apparent. One is surprised that this divergence is still as much as it is, after the extensive changes and improvements in technique during the last five years.

The technique of secondary saturation, a method producing an extreme degree of muscular relaxation with nitrous oxide-oxygen, devised by McKesson, to whom the book is dedicated, is still advised as a special technique. There is no question that considerable relaxation can be so produced, but at some degree of hazard to the patient and opinion is widely held in this country that the

procedure is not justifiable. It is in such things as this and in the opinion that nitrous oxide-oxygen is suitable for anæsthesia in such operations as mastoidectomy, tonsillectomy, laryngectomy and abdominal surgery that one feels that this agent is being unwisely used. It is nowhere even hinted that in operations where excessive bleeding is often detrimental to successful surgery, other methods and drugs may be superior in obtaining a dry operating field.

The use of curare with nitrous oxide-oxygen is described, but none of the newer relaxants is mentioned.

Nitrous oxide-oxygen for dental anæsthesia and analgesia is dealt with in considerable detail. A clear description is given of the technique of induction and maintenance with the McKesson apparatus and there is helpful advice on matters often considered of minor importance, such as the position of the patient, oral packs and their proper placing, etc.; but one could wish for advice on some of the tribulations of the dental anæsthetist, such as the difficulty, sometimes encountered, of acquiring, without resort to the mouthpiece, nasal breathing during induction, and laryngeal spasm from mucus or blood which may have penetrated the pack. Suggestions for changing, during multiple extractions, by means of more than one prop rather than with a gag, to avoid retention of the latter by the anæsthetist's free hand and tension on the cheek by the gag, might profitably have been given, as by such manipulations the operator can be given considerable help.

It is still obvious that the dental section of the book assumes anæsthetics for dentistry to be administered by dental surgeons and not by anæsthetists (pp. 304-5). The evaluation of the patient's physical condition, as described, would need a wider medical knowledge than is usually available, particularly as the administration of major dental anæsthetics with endotracheal technique seems by implication to be not necessarily in the hands of an anæsthetist.

The use of a strap around the patient's hips to avoid a slump or to restrain movement is widely and reasonably accepted as good practice, but one is surprised to find advocated the use of " restraining devices, such as apron, wrist or ankle cuffs " and " restraining aprons enveloping the whole body."

The paramount importance of a good airway is wisely stressed, and experience in dental anæsthesia teaches the anæsthetist how frequently this can be difficult to attain; but the use of a nasopharyngeal tube, useful though it may be in the acquiring of a good airway, "as a routine for all dental anæsthesias except in very brief cases" does not commend itself. The tube illustrated would seem to be at least a Magill No. 7 or 8, so far as can be estimated from the photographs, and the routine use of such a one, or even a smaller, through a nares, whether cocainised or not (and this is not suggested), would undoubtedly tend to be productive of intranasal trauma with the possibility of subsequent adhesions, to say nothing of bleeding at the time (which is envisaged) and which can more easily upset the anæsthesia than the lack of a tube.

An interesting and useful chapter on " misconceptions" has been added in this edition, which considers more fully, among other things, the significance of cyanosis. Macintosh's discussion on this subject in " Essentials of General Anæsthesia " is fully quoted, but it is obvious that " good colour " is not considered so essential as it is in this country.

The book is as well produced as before, with a good index, full bibliography and excellent illustrations. The type is restful and the binding good and pleasant.

FUNKTIONELLE PROTHETIK. First edition. By Professor Dr. Walther Wild. Head of the Prosthetic Department of Zurich University Dental School. Basle: Benno Schwabe & Co. 1950. Pp. 202. Price 20 Fr.

This monograph is concerned not so much with denture prosthesis as with some of the fundamental aspects of the physiology of the mouth and jaws. The author is careful to explain in a foreword that the book is not a general textbook of prosthetics and he promises to deal with the more mechanical and technical sides of the subject in a separate book.

The movements of the jaw are described and classified and in particular the movements of mastication have been very fully analysed, much of the material used being the author's original research work.

The discussion of abrasion markings in the human dentition and their correct interpretation constitutes the central theme of the book and is worthwhile reading for any research minded dental surgeon.

The determination of vertical dimension by various methods is dealt with in detail and the author condemns the practice of equalising the distance between the outer canthus of the eye and the corner of the mouth with that between the anterior nasal spine and chin, which is usually associated with Willis' bite gauge, and he recommends instead procedures based on finding the rest position of the mandible. Several such procedures are mentioned and their merits discussed. One of them which is said to be practised by R. O. Schlosser is rightly criticised, but then your reviewer is not aware that Schlosser ever advocated the procedure as described. The only reference to Schlosser's writings which appears in Wild's book is to an article in *Dental Digest* of 1923, which appears to have no connection with the subject in question.

The superficial reader may find Prof. Wild's style rather verbose (" Jaw musculature, tongue musculature and the glands of the mouth serve one common function : Mastication. They are co-ordinated with one another ; their activities are directed towards the same goal and happen together at the same time. They constitute a synergism "), and some of the many photographs border on what could be mistaken for padding, yet the book abounds with shrewd and pointed observations. The different functions of lateral and protrusive bites, the importance of distinguishing between jaw movements and movements of mastication are emphasised.

The critical reader will like the suggestion that to induce a patient to " move his teeth sideways " while trying in a set-up may be poor psychology. A patient who has never worn dentures will have to make a conscious effort in order to learn their use, and movement from centric occlusion into lateral excursion with teeth clenched firmly together is the last habit one would wish a patient to acquire.

One chapter is devoted to phonetics and another to

XIth INTERNATIONAL DENTAL CONGRESS JULY 19th-26th 1952

Important Notice

THE CONGRESS which will be held in the Royal Festival Hall will be the outstanding event in the progress of Dentistry in England during this century. Dental experts from all over the World will be meeting to present reports, to discuss the latest research, and to give demonstrations of Modern Techniques.

It is an occasion which no member of the dental profession can afford to miss.

Every Dental Practitioner in the United Kingdom is invited to become an Active Member of this Congress and to enrol as many Associate Members as possible. The categories of associate membership which are available are explained on page 37 of the supplement to this issue of the British Dental Journal.

By enrolling before January 1st, 1952, members of the profession will not only obtain the reduced fee and ensure tickets for the various receptions etc., but by so doing will greatly assist the Organizing Committee in completing the detailed Programme.

A booklet "Congress Information" is available and a copy will be sent upon request.

All communications and enquiries to :

THE HON. SECRETARY
XIth INTERNATIONAL DENTAL CONGRESS
13 HILL STREET, LONDON, W.1

¶ *SEE ALSO PAGE 37 OF THIS ISSUE OF THE SUPPLEMENT TO THE BRITISH DENTAL JOURNAL.*

Please turn overleaf.

XIth INTERNATIONAL DENTAL CONGRESS

ROYAL FESTIVAL HALL LONDON. JULY 19th-26th, 1952

ENROLMENT FORM

Please use BLOCK LETTERS.

¶ I wish to attend the Congress as an Active Member.

Surname.....Christian name(s).....

Qualifications or degrees.....

Address.....

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¶ I wish to enrol the following as Associate Members: (Please delete category not applicable.)

SURNAME	CHRISTIAN NAME(S)	ADDRESS	CATEGORY		AMOUNT OF SUBSCRIPTION
			Undergraduate	10/-	: :
			Relative not practising	£2 10 0 or £2 15 0 after Jan. 1st, 1952	: :
			Auxiliary		: :
			Technician		: :
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ACTIVE MEMBER (£5 *or* £5 10s. *after January 1st, 1952. Half subscription for F.D.I. Members of two years standing.*) : :

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For further details see page 37 of this issue of the BRITISH DENTAL JOURNAL.

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æsthetics, or, as the author prefers to call it, Physiognomics.

Except that fig. 49 appears printed upside down, the quality of the reproduction and printing is of a very high standard.

The text should serve as a very useful corollary to some of the more conventional books on dental prosthetics.

Observations on Salivary Lactobacillus Counts for a Period Before and After Topical Applications of 2 per cent Sodium Fluoride.—77 children of ages 7 to 16 years were divided into experimental and control groups of equal size. Each child in the experimental group received four topical applications of 2 per cent sodium fluoride, the first preceded by an oral prophylaxis. Control children received a single prophylaxis. Salivary lactobacillus counts, by the method of Permar and Kitchin, taken before and at intervals up to 22 months after, showed no significant differences between the two groups.—KITCHIN, P. C., ROBINSON, H. B. G., PERMAR, D., and IMHOFF, A. H. (1951) *J. dent. Res.*, **30**, 251.

Renewal of Bone Phosphate in Experimental Hyperparathyroidism.—In animals given large doses of parathyroid extract it has been shown that profound changes appear in the bones within a few hours of administering the hormone; nevertheless its mode of action is still obscure. The present series of experiments was designed to obtain information concerning the age and structure of bone resorbed in chronic hyperparathyroidism, using radioactive phosphorous. Litter-mate male rats, about three months old, were placed on an optimal diet containing 1 per cent calcium and with a Ca/P ratio of 1·0. Hyperparathyroidism was produced by giving the animals, in all, 800 units each of "Para-thor-mone" spread over twenty days. The last dose (100 units) was given two hours before administration (intraperitoneal) of 0·3 mC. radioactive phosphate. After the desired time the animals were killed and the specific activity of orthophosphate in deproteinised blood was determined directly. At the same time the specific activity of phosphate in different fractions of mineral salts from epiphyseal and diaphyseal bone (femur and tibia) removed immediately after death was determined. It was shown that, as a consequence of treatment with high doses of parathyroid hormone, the renewal of phosphate in both epiphyseal and diaphyseal bone becomes, after a lapse of one and a half hours, much less than in control animals. In a three-hour duration experiment, whereas in the control animals the renewal of phosphate was about the same as after one and a half hours, in the treated animals there was a continuous rise in the renewal of phosphate in comparison with the value after one and a half hours. (Renewal of phosphate was derived from the values determined for the specific activity in phosphate in blood and bone.) It was also shown that, in hyperparathyroidism, bone in the Haversian systems and old bone were resorbed equally. The mineral salts of this young and old bone differ considerably, and the authors therefore advance the hypothesis that parathyroid hormone acts on the organic constituent of bone rather than directly on the mineral salts. Moreover, since the rate of renewal of phosphate in the skeleton of normal and treated animals differs, and does not appear to depend only on simple physical conditions such as solubility of mineral salts or degree of vascularisation, it is suggested that calcification as well as renewal of phosphate must be the result of specific cell activity, regulated, perhaps, by hormonal control.—ZETTERSTROM, R., and ENGFELDT, B. (1951) *Nature* (Lond.), **168**, 81.

Interference with Articulation and Periodontal Bone Resorption. A Review of the Literature.—The term traumatic occlusion was introduced into the American literature in 1917 by Stillman and is still widely used. The pathological condition resulting from it, periodontal traumatism, is defined as a condition in which injury results to the supporting structures from the act of bringing the jaws into the closed position. Experiments to produce a traumatic occlusion were carried out by Gottlieb, Orban and Stones, with characteristic histological changes. The author refers to the work of Hanau and to his formula relating the condylar angle, the occlusal curvature, occlusal plane and incisal guidance. Schuyler in 1929 was one of the first dentists to postulate the importance of the true centric relation and the necessity to grind in a natural bite. He states that a disturbance between the true centric relation and the habitual centric relation results in a breakdown of alveolar bone. This was first discussed in European literature by Lindblom (1926). Thielemann in 1938 analysed the mechanical factors concerned and discussed them in relationship to biological alteration of the tissues. He defined the habitual centric relation as the basic position from which the mandible will proceed to protrusive, lateral and retrusive positions with the teeth in gliding contact. If the extreme positions are corrected, the intermediate positions will automatically harmonise. He also considers that indefinite pain in the jaws and temporomandibular joints without any alteration of the gingivæ around the teeth is often the first symptom of traumatic occlusion. He recommends the use of articulated models using a wax matric and the facebow and recommends orientation of the Frankfurt plane. This work was further elaborated by Beyron. Thielemann recommends the mounting of models in adjustable articulators such as the Hanau, Gysi and Schröder. The suggestion of Merritt (1945) that a little grinding here and there is all that is necessary to achieve a balanced occlusion, thereby ignoring the strict rules for bite grinding proposed by Schuyler (1935), Thielemann (1938) and Sorris (1946) and others is a typical and very widespread opinion based upon ignorance.—GRAPE-RAMEJORD, G. (1951) *Svensk. Tandlak. Tidskr.*, **44**, 6.

The Isolation, Propagation, and Activity of a Viral Agent associated with Dentinal Destruction.—Little attention has been paid to the possibility that a viral agent may be involved in the caries process. Fresh dentinal caries was scooped out and ground in a sterile mortar. A suspension of the material in saline was filtered through a Seitz filter. The bacteria-free filtrate was then passed through a series of chick embryos. This resulted in the development of inclusion bodies in the chorio-allantoic cells of the embryos. Rat's teeth were incubated in the allantoic fluid and after a time calcium salts appeared to have been released from the tooth substance.—TURNER, N. C., CROMWELL, G. E., and DEXTER, H. (1951) *J. dent. Res.*, **30**, 82.

Vesical Teeth.—A woman of 73 presented with suprapubic pain, frequency of micturition and hæmaturia. Radiographs showed two large stones of unusual shape in the bladder. The stones were removed at operation and when crushed one was found to contain two well-formed molar teeth joined at the roots by bone, while the other contained a piece of bone with a fragment of tooth attached. It is assumed that these structures originated in an ovarian dermoid and ulcerated into the bladder.—RICHARDSON, L. A. (1951) *The Practitioner*, **166,** 588.

BOOKS RECEIVED

PSYCHOSOMATICS AND SUGGESTION THERAPY IN DENTISTRY. By Jacob Stolzenberg, D.D.S. Philosophical Library, 15, East 40th Street, New York, 16, N.Y., U.S.A. Price 3 dollars 75 cents.

X-RAYS IN DENTAL PRACTICE. By G. H. Hepple. Philips Electrical, Ltd., Century House, Shaftesbury Avenue, London, W.C.2. Price 25s.

DIE AUSBREITUNGSFORMEN DER ODONTOGENEN PYOGENEN INFEKTION UND IHRE BEHANDLUNG. Volume VII in the series "Zahnheilkunde in Einzeldarstellungen." By Prof. Georg Axhausen. Carl Hanser, Leonhard-Eck-Strasse, 7, Munich, 27.

DIE IONOPHORESE. Volume VIII in the series "Zahnheilkunde in Einzeldarstellungen." By Prof. Dr. Hermann Wolf and Dr. Rudolk Lutz. Carl Hanser, Leonhard-Eck-Strasse 7, Munich, 27.

THE HEALTH SERVICE

NOTES FROM HEADQUARTERS

FROM OUR SPECIAL CORRESPONDENT

State (Postal) Orthodontics.—Reference was made recently in these Notes to the action of the Dental Estimates Board in vetoing orthodontic treatment "at the present time" without even bothering to arrange a clinical examination of the patient. A case has now been reported to Headquarters which would seem to indicate that the Board have now adopted the role of supreme orthodontic planning authority.

A practitioner submitted an estimate for moving forward into proper alignment two lower incisors. He indicated that further treatment might be needed later when the canines and premolars started to erupt, and that he was treating the case under the advice of a well-known London orthodontist, whom he named.

The Board's reply had the sole merit of being brief, and consisted of a single sentence in the form of a question: "with reference to . . . would expansion of both arches . . . followed by a labial bow . . . be contra-indicated?"

The practitioner re-examined his patient, discussed the Board's suggested alternative line of treatment with the orthodontist who had previously examined the case, and replied giving reasons why he preferred the treatment detailed in his original estimate. He was then "informed that the Board are not prepared to approve a fee for orthodontic treatment at the present time, but will be pleased to consider an Estimate at a later date when further development has taken place."

On the practitioner appealing the Board dropped their suggestion of expansion and now made representations to the appeal assessors that the proper treatment for the case was to await the eruption of the premolars and then extract them. Is it possible that a clinical examination of the patient might have helped the Board to make up their mind which of these diametrically opposed treatments was correct? In the event, the appeal assessors rejected them both, their report also consisting of a single sentence: "After clinical examination and presentation of fresh models we found that the treatment proposed by the practitioner should be sanctioned by the Dental Estimates Board." It is to be hoped that the significance of the first three words of this report was not lost on the Board.

Whatever the duties of the Board may be, it was certainly never envisaged that they would include the postal diagnosis and planning of orthodontic cases. Indeed in an official Ministry minute of a meeting with the representatives of the profession in July 1947, the following appears: "It was also pointed out that the function of the Dental Estimates Board was to facilitate treatment, not to form policy." Obviously if the Board are not satisfied that the orthodontic treatment proposed by the practitioner in charge of the case is the correct treatment for that patient, then they are entitled to obtain a second opinion based on a clinical examination of the patient. In the case quoted above, instead of taking this proper course, the Board, far from facilitating treatment, refused to approve it till some unspecified date in the future, and meanwhile they had apparently formed their own policy for treating the case.

The Board has to deal with tens of thousands of estimates for extractions and dentures every week, and it admits that in those cases it will "at once accept the dentist's clinical judgment." If it is unwilling or unable to obtain a second opinion on orthodontic cases, then they should be prepared to accept the clinical judgment of the dentist who has examined the patient, and who has given a lot of time and thought to diagnosing the case; they certainly have no right to seek to impose their own ideas regarding the age at which, or the method by which the case should be treated.

It is to be hoped that the profession will not tolerate this state of affairs. Members whose orthodontic estimates are arbitrarily rejected by the Board in this manner are urged to send all papers and details of the case to the Health Acts Department *immediately*. They are advised not to appeal against the Board's decision until they have received advice from Headquarters as to the manner of lodging the appeal.

The R.D.O. Service.—Prior to July 1948 it was repeatedly stated by the Ministry that the R.D.O. Service under the Health Act was to be quite a different service from the old service under the N.H.I. Dental Benefit Regulations. While it was obvious that a certain amount of routine checking and inspecting of work must go on, the emphasis in the new Service was to be on consultations. The Service was to exist to advise and help dentists in the problems that arose in practice, and it would provide them, and also official bodies such as the Estimates Board, with second opinions when required.

To say that the R.D.O. Service has failed to live up to the high hopes that were expressed for it would be an

understatement. It would be nearer the truth to say that the Service has proved to be utterly incompetent and inadequate to meet its obligations. It must be made clear at once that this statement implies no criticism of the individuals who work in the Service, any more than a similar statement made regarding the School Dental Service could be taken as a reflection on school dental officers.

As the result of experience of the long delays entailed, general practitioners now think twice about asking for a second opinion on a case from the R.D.O. Service. It is no secret that the Dental Estimates Board are severely " rationed " in the number of cases that they may submit to the Ministry for a second opinion. Some months ago many practitioners were mystified by the fact that some of their cases which had been held up by the Board for some time pending an R.D.O. report were suddenly authorised without any examination by the R.D.O. having taken place. This was due to the Ministry returning between 1,000 and 1,500 cases to Eastbourne owing to the fact that it was quite incapable of carrying out these examinations. The result has been that the Board have been making arbitrary decisions in cases on which they had desired a second opinion, and have been leaving it to the dentist to appeal if he is not satisfied. Thus the appeal assessors have in fact been acting as unpaid R.D.O.s in these cases.

Executive councils and their dental service committees have also learnt by experience of the long delay entailed in obtaining an R.D.O. report on a complaint that has to be investigated ; further, when a report has been obtained, the service committee has found it extremely difficult to secure the attendance of the R.D.O. so that he could be questioned on his report. As the result, many service committees are now relying on their dental members to act as unpaid R.D.O.s, thus placing these dental members in the illogical position of being important witnesses before a discipline committee of which they themselves are members.

The plain truth is that the R.D.O. Service is quite incapable of doing the job that it is supposed to do, and it is at present being carried on the shoulders of those members of the profession who in a voluntary capacity sit as appeals assessors or as members of service committees.

The Ministry recently admitted to the Committee of Public Accounts that it had not got enough officers to enable it to do its work properly, and that this was due to the fact that it did not offer high enough salaries to attract recruits to the R.D.O. Service.

The sooner the R.D.O. Service is put on a proper basis and is freely available to provide a consultative service for the general practitioner and the Dental Estimates Board, and to provide the evidence of an independent professional witness before dental service committees the better it will be for the smooth running of the General Dental Service.

Personalia

MR. A. NESBITT, L.D.S.Lpool., has been appointed Senior Hospital Dental Officer to the Victoria Hospital for Children (St. George's).

DENTAL NEWS

FILM ON DENTAL ANÆSTHESIA

A SOUND film, " Nitrous Oxide-Oxygen Anæsthesia in the Dental Surgery," has been made for the British Oxygen Co. Ltd. The opening shots of the films are devoted to a brief history of the equipment used in anæsthesia for dental operations from the miniature gas holders to the present-day machines. From this the film passes on to modern methods of administration and the uses of accessories for varying conditions. This is followed by a sequence of actual cases filmed at the Eastman Dental Hospital. In these the addition of a sound track is of doubtful value—all the incidental noises such as that produced by the operator dropping a pair of forceps into an enamel tray being exaggerated to an undesirable extent. The film concludes by showing examples of modern anæsthetic apparatus. The running time of the film is 47 minutes.

DENTAL TRADE EXHIBITION

THE Association of Dental Manufacturers and Traders of the United Kingdom have organised an exhibition of dental equipment and material to be held in the Old and New Horticultural Halls, Vincent Square, London, S.W.1, from Monday, October 29, to Thursday, November 1. Both manufacturers and retailers will be represented in the exhibition and an attractive series of films will be shown. This includes such subjects as airbrasive, anæsthesia, acrylic filling materials and the application of tungsten carbide to dentistry. Admission to the exhibition is by ticket.

BRITISH DENTAL STUDENTS' ASSOCIATION

THE Annual Convention of the British Dental Students' Association was held in Liverpool, July 23–27, 1951. The delegates were welcomed by Professor H. H. Stones. Hon. President of the Association, at a Reception held on the opening day. On the following day lectures were given by Sir Henry Cohen, " Neuralgias of the Face " ; Professor H. H. Stones, " Oral Manifestations of Systemic Diseases," and Mr. Hallam," Dental Mishaps," and The S. S. White Co. Ltd. showed a film on airbrasive technique. During the week delegates visited Liverpool Cathedral, the Liverpool Dental Hospital and a penicillin factory.

The convention concluded on July 27 with the annual dinner. The following were elected to the Executive Committee of the Association : President, Professor H. F. Humphreys ; Student President, K. J. Johnston, Belfast; Secretary, W. H. Morrow, Belfast; Assistant Secretary, C. G. Curry, Liverpool ; Treasurer, Miss G. Pintiney, Newcastle ; Editor, R. A. Ralston, Glasgow ; Publicity Officer, C. K. M. Imrie, Leeds ; and Miss G. Sheen, University Hospital, London, and H. D. Levy, Liverpool.

ILLEGAL PRACTICE

SIDNEY GERALD EVANS, a dental mechanic of Frome, was fined £4 and costs amounting to £3 8s., on two charges of having practised dentistry unlawfully. He pleaded guilty to having taken impressions of a patient's mouth and subsequently fitting a denture for him. Defendant said in evidence that he made the denture to oblige the patient who could not get it made elsewhere because dentists were too busy with the National Health Service. It was stated that Evans had been convicted of three offences in 1947. The prosecution was undertaken by the Dental Board.

DENTISTRY IN EIRE

THE Minister for Health for Eire has set up a Dental Consultative Council to advise him on the improvement and extension of dental services provided by local authorities, matters concerning the training of dentists, the desirability of local authorities employing dental nurses and any other questions which the Minister may refer for advice to the Council.

CHROME COBALT ALLOYS

A LECTURE will be given by Mr. J. Boswell on "Chrome Cobalt Alloys" under the auspices of the Institute of British Surgical Technicians (Dental Section) on Tuesday, October 23, 1951, at 6.30 p.m., at the Eastman Dental Hospital, Gray's Inn Road, London, W.C.1.

Admission by ticket obtainable on sending stamped addressed envelope to the Institute of British Surgical Technicians, 6, Holborn Viaduct, London, E.C.1, or through members of the Institute.

The Services

ANNUAL DINNER R.A.F. MEDICAL AND DENTAL BRANCH

THE annual dinner of the Royal Air Force Medical and Dental Branch will be held on Friday, October 12, at the Hyde Park Hotel, London. All past and present medical and dental officers are eligible to attend. Application for tickets, £1 8s., should be made to the Honorary Secretary, R.A.F. Medical and Dental Branch Dinner, Air Ministry (M.A.3), Adastral House, Kingsway, London, W.C.2.

Obituary

Alfred Leslie Darbey, of Bristol, collapsed and died while attending a patient on August 29. He was 68 and had practised in Bristol for the whole of his professional career.

Frank Swire, L.D.S.Glas., of Halifax, died on August 31. He was 65 and qualified in 1914.

The Charge for Announcements of Births, Marriages and Deaths is 2s. 6d. per Line. (Approximately 8 words.) Minimum 7s. 6d.

Birth

HEALY.—On August 25, 1951, at The Middlesex Hospital, to Rosalind, wife of James A. Healy, L.D.S., a brother for Patrick.

Marriage

McCLELLAND—CALDER.—On September 8, 1951, at St. Mary's Presbyterian Church of England, Woolston, Southampton, Thomas McClelland, L.D.S. R.F.P.S.Glasg., of Andover, Hants, to Elizabeth Dickson Calder, S.R.N., of Woolston, Southampton.

Deaths

HORSLEY.—On August 24, 1951, peacefully at Staines, age 70 years, Frederick Horsley, L.D.S. R.C.S.Irel. Cremated at St. John's Crematorium, Woking.

MAYWHORT.—Suddenly, on August 28, James Herbert Maywhort, L.D.S. R.F.P.S., 10, Swan Bank, Congleton, Cheshire.

Our Diary

Friday, September 21.

Surgical Instrument Manufacturers' Association (Inc.)—Dental Laboratories Section.—78, Mount Pleasant, Liverpool 3, 7.30 p.m. Recorded repeat of Dental Brains Trust, June, Caxton Hall. Tickets from Hon. Sec., E. Flitcroft, 353 Lord Street, Southport. Members of profession, their staffs and laboratory owners welcome.

Tuesday, September 25.

Preston, Leyland and Chorley Section.—Starkie House, Preston, 7.30 p.m. "The Work of the Health Acts Committee," O. Pierce Roberts.

Thursday, September 27.

Metropolitan Branch—South Eastern Section.—Opening meeting, The War Memorial Hospital, Shooters Hill, S.E.18, 7.15 p.m. Films on Dental Anæsthesia will be shown.

North Western Branch.—First General Meeting of the new branch, Y.M.C.A., Jubilee Hall, China Street, Lancaster, 7 p.m. All members are requested to make a special effort to attend.

Friday, September 28.

Wessex Branch.—Carlton Hotel, Bournemouth, 8.15 p.m. preceded by informal dinner, 6.30 for 7 p.m. "The New Zealand Dental Nurse," Dr. W. G. Senior.

Bognor Regis, Chichester and District Section.—Dinner Meeting, Sefton Lodge Hotel, Bognor Regis, 7.30 p.m. "Original Communications."

Tuesday, October 2.

Mid-Surrey and District Section.—The Watermill, Reigate Road, Dorking, 7.15 for 7.45 p.m. "Some Aspects of the Dental Health Service," Dr. W. G. Senior.

Thursday, Friday and Saturday, October 4, 5 and 6.

Eastern Counties Branch.—Annual Meeting, Norwich. Thursday: 2.30 p.m., Golf Competition; 8.30 p.m., Council Meeting. Friday: 10 a.m., Annual Meeting; 2.30 p.m., "The Dentist as Defendant," W. R. Tattersall; 7.30 p.m., Annual Dinner and Dance. Saturday: 10.30 a.m., "Some Aspects of Dentistry in relation to Reconstructive Surgery," Rainsford Mowlem.

Friday, October 5.

The Royal Dental Hospital of London.—Annual Prize Distribution, Royal Dental Hospital of London School of Dental Surgery, 8 p.m. Professor J. Z. Young will present the awards.

Friday and Saturday, October 5 and 6.

Southern Counties Branch.—Annual Meeting, County Hotel, Canterbury. Friday: Evening, Council meeting; Saturday: Morning, General meeting; Afternoon, Valedictory Address and inauguration of President; Paper: "Wartime Caries Incidence of Children in (1) Occupied Countries and (2) Residential and Day Nurseries," Miss E. M. Knowles.

Saturday, October 6.

East of Scotland Dental Golfing Society.—Competition (Trophy—Captain's prize), Gullane No. 1 Course, 9.30 a.m.; Foursomes, 2.30 p.m.; Annual Dinner, Gables Hotel, 6.30 for 7 p.m.

Monday, October 8.

The British Society for the Study of Orthodontics.—Manson House, 26, Portland Place, London, W.1, 7.30 p.m. "Cephalometric Radiography in Diagnosis and Treatment Analysis," A. E. Eastwood.

Tuesday, October 9.

Bristol and District Section.—Annual Meeting and Chairman's Inaugural Address, Dental Hospital, Bristol, 7.30 p.m.

East Lancashire and East Cheshire Branch.—The Dental Hospital and Turner Dental School, Manchester 15, 7.30 p.m. Address and Sound Films on General Anæsthesia, Dr. V. Goldman.

Hampstead Sub-section.—Annual Meeting, Hampstead General Hospital, Haverstock Hill, N.W.3, 8.30 p.m. "Surgical Anatomy of the Mouth," R. Course.

Thursday, October 11.

Metropolitan Branch.—13, Hill Street, Berkeley Square, London, W.1, 7.30 p.m.

The Society of Dental Anæsthetists—London and Southern Counties Branch.—Eastman Dental Hospital, Gray's Inn Road, London, W.C.1, 7.30 p.m. "Recent Clinical Advances in Anæsthesia," Dr. W. H. Myers.

Friday, October 12.

Oxon, Bucks and Berks Branch.—First General Meeting, Committee Room, Radcliffe Infirmary, Oxford, 7.30 p.m. "Partial Denture Construction," Professor J. Osborne, 8.30 p.m.

Friday and Saturday, October 12 and 13.

West Lancashire, West Cheshire and North Wales Branch.—Annual Meeting, Adelphi Hotel, Liverpool. Friday: 10 a.m., Annual Golf Competition, Ormskirk Golf Club; 3.30 p.m., Annual Meeting; 7.30 p.m., Annual Dinner and Dance. Saturday: 10.30 a.m., President's Inaugural Address; "Current Dental Topics," A. H. Condry; 2.30 p.m.: Æsthetics and Prosthetics," O. P. Roberts.

Yorkshire Branch.—Annual Meeting, Grand Hotel, Harrogate.

Saturday, October 13.

Hospitals Group—North West Metropolitan Division.—Annual Meeting, followed by a Clinical Meeting, Central Middlesex Hospital, Acton Lane, Park Royal, London, N.W.10, 2 p.m.

Friday and Saturday, October 19 and 20.

Representative Board.—13, Hill Street, Berkeley Square, London, W.1. Friday, 10 a.m.; Saturday, 9.30 a.m.

BRITISH DENTAL JOURNAL

Communications with regard to editorial business should be addressed to THE EDITOR, *BRITISH DENTAL JOURNAL*, 13, Hill Street, Berkeley Square, London, W.1. Telephone: Grosvenor 2761. Telegrams: "Bridention," Audley, London.

Original Articles and Letters submitted for publication are presumed to be offered to the *British Dental Journal* only unless the contrary is stated.

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BRITISH DENTAL JOURNAL SUPPLEMENT

September 18, 1951

ASSOCIATION NOTICES

BRITISH DENTAL ASSOCIATION

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XI INTERNATIONAL DENTAL CONGRESS

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Telephone No.: GROsvenor 1172.

THE XIth INTERNATIONAL DENTAL CONGRESS
London, July 19–26, 1952

Patron: HIS MAJESTY THE KING

MEMBERSHIP OF THE CONGRESS

Members of the Congress may be either (*a*) Active, (*b*) Honorary, (*c*) Associate.

The conditions of admission of Active and Associate members are set out in the following extracts from the Rules of Congress:

Active Members

Every practising dentist possessing a legal qualification to practise dentistry in the country in which he received his professional education, or in the country in which he lives, may become an active member of the Congress[1] after approval by his National Committee or by the Membership Committee of the Congress (in the case of Germany by the Membership Committee appointed by the F.D.I.), on payment of the appropriate subscription. Medical graduates and licentiates and members of other scientific professions may also be admitted as active members.

Candidates for admission to the Congress as active members must forward an application on the official form to the Secretary-General of the Congress, Mr. H. Parker Buchanan, XIth International Dental Congress, Organising Committee, 13, Hill Street, Berkeley Square, London, W.1. Application forms are obtainable from the National Societies, National Committees or direct from the Secretary-General of the Congress.

On each application form there must be stated:

(1) Full postal address.
(2) Professional and scientific qualifications and titles.

The application form must be accompanied by the appropriate subscription and by a visiting card or a typewritten name and address.

The subscription is £5 if the postal date on the application form is prior to January 1, 1952.

For applications received after that date the subscription will be £5 10s.

Individual members of the F.D.I. of not less than two years' standing and whose subscriptions are not in arrears, shall be admitted to full active membership of the Congress on payment of half the subscription.

Associate Members

The following may be admitted as Associate Members of the Congress.

(1) Undergraduates in Dentistry and Medicine. (Not in practice.)
(2) Relatives of members of the Congress, providing that they are not practising dentistry.

[1] A person having the required qualification of an Active Member of the Congress can only be admitted as such.

(3) Ancillary Services (Hygienists, Dental Nurses).
(4) Technicians.
(5) Trade exhibitors or their representatives.

Applications for admission as Associate Members must be forwarded to the Secretary-General of the Congress, Mr. H. Parker Buchanan, XIth International Dental Congress, Organising Committee, 13, Hill Street, Berkeley Square, London, W.1.

On each application form must be stated:

(1) Full postal address.
(2) (*a*) *For Undergraduates in Dentistry or Medicine.*
—The name of the dental school or medical school where training is being received, countersigned by the Dean of the school or the Principal, and a statement that they are not practising dentistry.
(*b*) *For Relatives.*
(1) The name and address of the active member to whom they are related (stating relationship).
(2) A statement that they are not practising dentistry.
(*c*) *For Ancillary Services.*
A signed introduction from a registered dentist.
(*d*) *For Technicians.*
A signed introduction from a registered dentist.
(*e*) *For Trade Exhibitors.*
Evidence of participation in the exhibition.

The application form must be accompanied by the appropriate subscription and by a visiting card or a typewritten name and address.

The Subscription is:

For an Undergraduate 10s.

For all other Associate Members £2 10s. or £2 15s. if applications are made after January 1, 1952.

For Trade Exhibitors who buy 100 sq. ft. of space at the Congress, two Associate Memberships will be issued gratis and one Associate Membership for every succeeding 100 sq. ft.

A form of application for membership of the Congress is enclosed with this issue of the Journal. This, when completed, should be returned to the Secretary-General, XIth International Dental Congress, 13, Hill Street, Berkeley Square, London, W.1.

BENEVOLENT FUND

The Honorary Treasurer (Mr. E. B. Dowsett) gratefully acknowledges the receipt of the following:

Donation.

Dr. G. A. Fraser, £4 4s.

Waste Amalgam.

K. Barker, Secretary of Scarborough Section, K. J. Cawley, J. W. Mawer, N. C. Yendell, G. H. Leatherman.

By the latest sale of waste amalgam, a further sum of £37 has been realised making a total of £3,850 10s. 7d. Will members who have any considerable quantity of waste amalgam kindly forward this to the Honorary Treasurer, 13, Hill Street, Berkeley Square, W.1, at their early convenience?

Western Counties Branch.—*Election of Branch Representatives.*—Nominations are invited for the election, at the Western Counties Branch Annual Winter Meeting to be held at Taunton on Saturday, November 3, 1951, of five members of the Western Counties Branch, one of whom shall be a Dentist 1921, to the Representative Board which is to take office in January, 1952.

All nominations must be signed by not less than three members and must be in the hands of the Branch Hon. Secretary, W. R. Roy Mewton, Medway House, York Street, Plymouth, on or before October 16.

Northern Counties Branch.—*Election of Branch Representatives.*—Branch members are invited to submit nominations for THREE members for the Representative Board 1952-1955. Nominations should be sent to John Chalmers, 78, Dean Road, South Shields, so as to reach him not later than October 2, 1951. (Amended notice.)

Correspondence

Orthodontic Policy.—May I, as a senior member of what remains of our profession, join Mr. E. McLaren Hope in his anxiety over this subject? Not having joined the State Scheme myself I nevertheless enjoy the society of many colleagues who have and who express their increasing disgust should the topic of orthodontics be mentioned.

Starting my special study of the subject in Pennsylvania Dental School in 1914, I have pursued it with increasing interest and a satisfactory amount of success ever since. With what amounts to forty years' practical experience behind me I hope to have many more years in front of me, for being robbed of my goodwill I must work till my legs refuse to carry me. But " How Now ? " Since the Act, new private orthodontic work largely disappeared along with the younger set in general, who maintain they cannot afford such luxury for themselves or their offspring ! My colleagues protest they " Cannot be bothered with it " and I do not blame them, as after forty years I should hesitate before commencing treatment to give an inclusive period for treatment or an exact estimate of the possible cost, as required, I understand, by the Estimates Board. It is frequently difficult enough to get parents, while paying for it, to provide the moral backing necessary for such work.

Is there any better prospect of results for " Free " treatment these days without it ? No ! Mr. Townend can go the whole hog for " The eradication of sepsis," father may have a good night's sleep even, but the number of orthodontic cases arising from Mr. Bevan's " Bounty " will increase a thousand-fold with every deciduous tooth prematurely removed, and who is there with the knowledge and experience coming along to tackle such a task, which will be magnified in direct proportion to the number of teeth so removed and the time the Ministry take to do something about it ?

To me there are only two things that appear certain at this moment. One is that my forty (orthodontic) years' experience will very soon be completely useless and the other is that, until politics and any real benefit to the public health are divorced, we shall soon be back where we were after the first Great War. A " C.3 " nation ; but wasting £49 million per annum in the effort to keep the Labour Party in office and the dental profession in the bondage it has earned for itself meanwhile.

Children will not complain till later.—WALTER A. CRANE, *Lathom House*, 4, *St. Stephen's Road* (*The Square*), *Bournemouth.*

N.H.S. Orthodontics.—On completion of the first stage of treatment a delay of anything up to three months may take place before the Dental Estimates Board see fit to approve the second stage. To try to obviate this marking time I submitted a single case outlining the two necessary stages.

The E.C.17 was returned with the first stage approved, the second however would be considered only on completion of the first.

No explanation was given as to why the Board was unable to approve the treatment as a whole.

This arbitrary treatment by the Board is one more deterrent to the treatment of children within the N.H.S. They must now take a back seat both from the clinical and financial aspect.

Surely it is time the B.D.A. pressed for the spotlight of publicity to be thrown upon the autocratic and most secret machinery of the Dental Estimates Board.—P. D. WHARTON, 9, *London Road, Kettering.*

NEW MEMBERS

(W.S.) CARPENTER, Thomas Rees. L.D.S.Glasg., Springbank, Kirkcudbright.

(M.) CARR, Hugh Graham, L.D.S.Eng., Top Flat, 219, Archway Road, Highgate, London, N.6.

(—) CAULFIELD, Michael Patrick, B.D.S.Irel., 44, Harcourt Street, Dublin, Eire.

(W.S.) COLVIN, James, L.D.S.Glasg., Eliock Lodge, Prestwick, Ayrshire.

(W.S.) DAWSON, Agnes Weir (Miss), L.D.S.Glasg., 18, Boclair Road, Bearsden, Glasgow.

(W.S.) DICK, Robert, L.D.S.Glasg., 19, Marshall Street, Coatbridge.

(E.S.) FERGUSON, Henry Wilson, L.D.S.St.And., 68, Smithfield Loan, Alloa, Clackmannanshire.

(Y.) FIRTH, Wilfred, L.D.S.Leeds, 13, Southbrook Terrace, Horton Road, Bradford, Yorkshire.

(N.S.) GORDON, James Alexander, L.D.S.Sheff., Coral Cottage, 45, High Street, Lossiemouth, Morayshire.

(E.C.) GRAY, Derek John, L.D.S.Eng., Joyce House, Farm Hill, Waltham Abbey, Essex.

(W.L.) HEATHCOTE, Pamela Leslie (Miss), L.D.S.Lpool., 16, Conyers Avenue, Birkdale, Southport, Lancs.

(W.S.) KANTOROWICZ, Georg Friedrich, L.D.S.Glasg., 227, Ardway Street, Glasgow, E.2.

(E.C.) LEYDEN, James Napier, L.D.S.Glasg., 37, Burleigh Street, Cambridge.

(C.C.) LINDON, Sheila Margaret (Miss), L.D.S.Eng., 872, Bristol Road, Selly Oak, Birmingham, 29.

(N.C.) LISHMAN, Frederic James, L.D.S.Durh., 259, Chester Road, Sunderland.

(W.S.) McMENEMY, Peter, L.D.S.Glasg., 15, Westfield Drive, Glasgow, S.W.2.

(W.S.) McNALLY, Gerard, L.D.S.Glasg., 36, Bentinck Street, Glasgow, C.3.

(W.) McCALLION, Patrick Lawrence, L.D.S.Glasg., 30, Victoria Road, Swindon, Wilts.

(W.S.) McFEAT, Robert John Fisher, L.D.S.Glasg., 12, Broomley Drive, Giffnock, Glasgow.

(W.L.) MOFFAT, James Craig, L.D.S.Glasg., Derwen Hall, Trevor, Wrexham.

(M.) MORRIS, Gerard Peter, B.D.S.Irel., 23, Sylvan Road, Wanstead, London, E.11.

(M.) NELSON, James Alexander Llewellyn, L.D.S.Manc., Eastman Dental Hospital, Gray's Inn Road, London, W.C.1.

(W.S.) POUSTIE, John, L.D.S.Glasg., 323, Allison Street, Crosshill, Glasgow.

(S.C.) PRYNNE, Edward, Dentists Act, 7, King Street, Reading, Berkshire.

(W.S.) RENFREW, Muriel Smith (Miss), L.D.S.Glasg., 97, Newark Street, Greenock, Renfrewshire.

(W.S.) RODGERS, James, L.D.S.Glasg., 46, Broomhill Road, Glasgow, W.1.

(W.S.) SMITH, George Watt Fairfull, L.D.S.Glasg., 79, Holeburn Road, Glasgow, S.3.

(M.) SOLWAY, Louis Iser, L.D.S.Eng., 75, Gloucester Place, London, W.1.

(—) SUFFIELD, Geoffrey Phillipson (Captain, Royal Army Dental Corps), L.D.S.Durh., 716, Army Dental Centre, No. 11, Field Dressing Station, B.A.O.R. 25.

(E.L.) THORNTON, Edwin Herbert Leonard, L.D.S.Edin., 13, King Street, Oldham, Lancs.

(Y.) TORDOFF, Basil Hainsworth, L.D.S.Edin., 11, The Green, Northowram, Halifax, Yorkshire.

(W.S.) WRIGHT, Andrew Mackenzie, L.D.S.Glasg., 24, Morley Street, Glasgow, S.2.

Readmissions

(W.S.) CHRYSTIE, William Cherry Steen, L.D.S.Glasg., 3, Lochview Road, Bishopburn, Stranraer.

(S.W.) CLARKSON, William Gordon, L.D.S.Edin., 26, Clytha Park Road, Newport, Mon.

FORTHCOMING MEETINGS AT HEADQUARTERS

September	20	Defence Services Committee	5.00 p.m.
September	26	Remuneration Committee	10.30 a.m.
September	29	Council	10.00 a.m.
October	1	Health Acts Committee	9.30 a.m.
October	1	Reorganisation Committee (30, Tavistock Square, W.C.1)	9.30 a.m.
October	18	Council	10.00 a.m.
October	19	Representative Board	10.00 a.m.
October	20	Representative Board	9.30 a.m.

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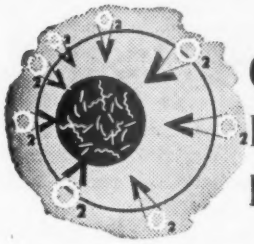

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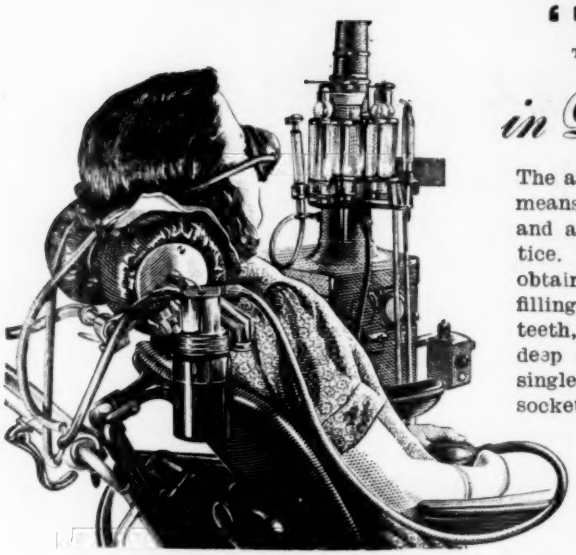

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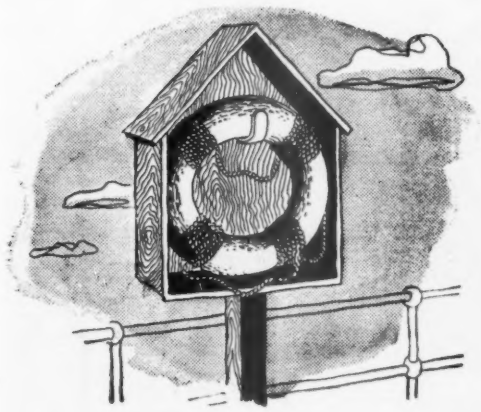

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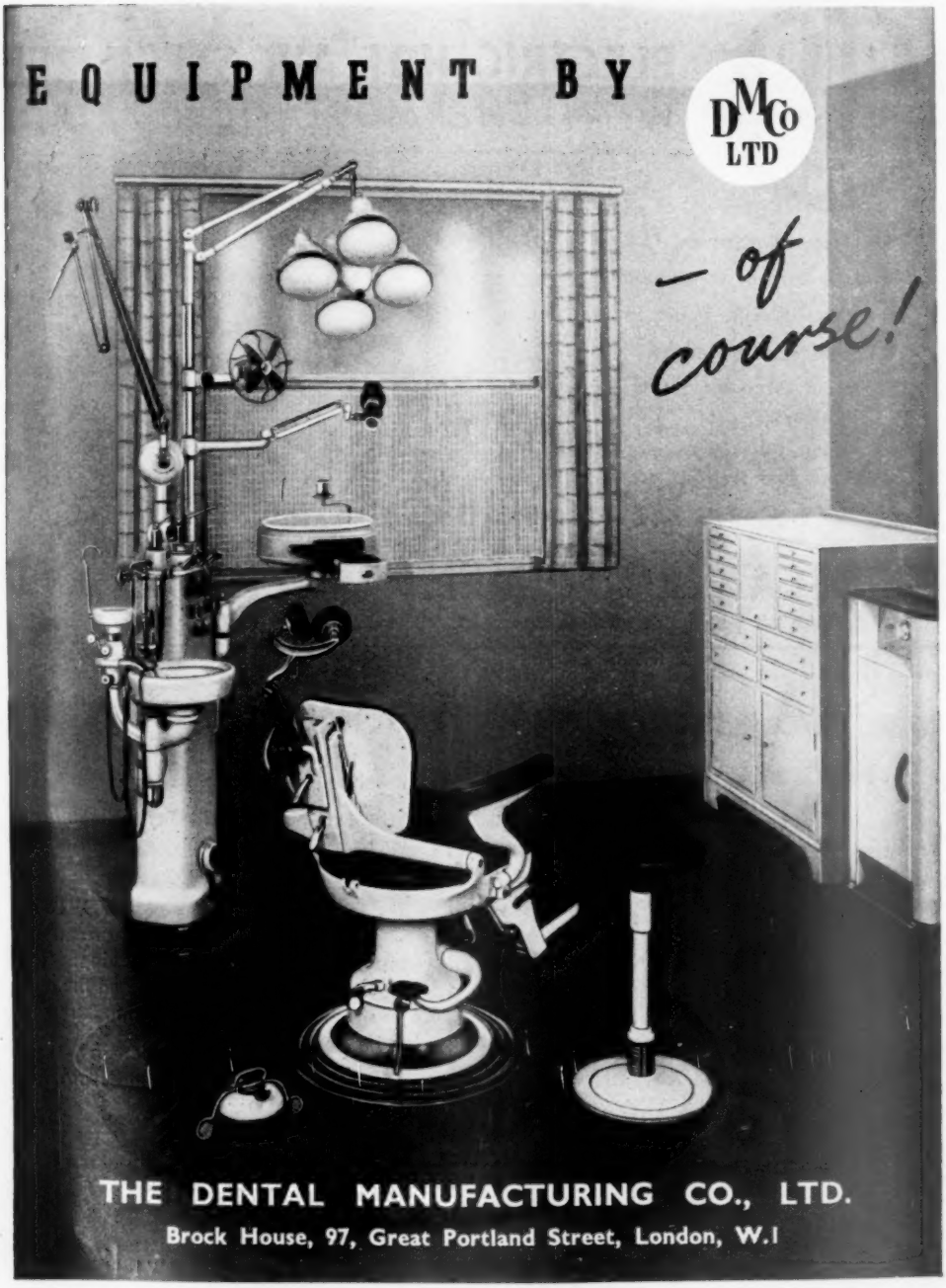

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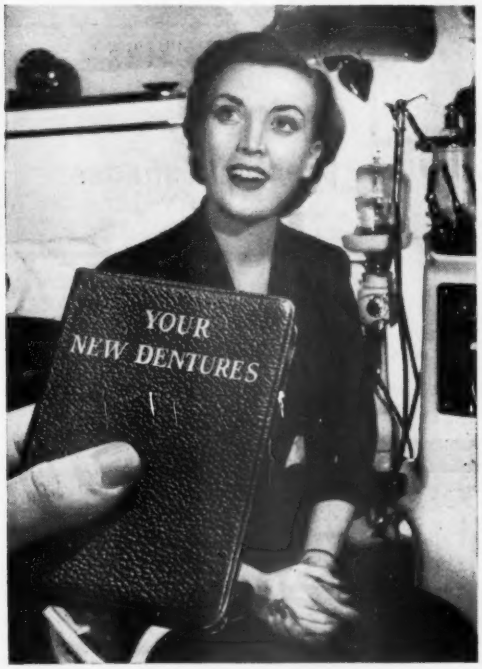

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. . . you would certainly include a section dealing with such traditional cleaning methods as steeping, rinsing and brushing.

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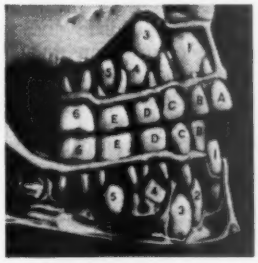

By courtesy W. Heinemann. Drawn by Frank Harrison From "Those Teeth of Yours," by Dr. Menzies Campbell.

PARDON . . . for the gruesome illustration. But did *you* know that before baby is born every tooth he will have has been begun out of sight deep in the gums? That is why baby's diet *must* exercise jaws and enable teeth to come into position correctly as early as possible. Bickiepegs solve that problem . . .

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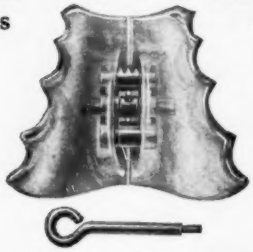

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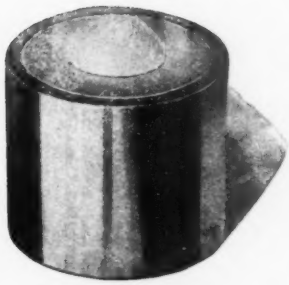

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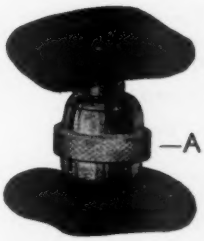

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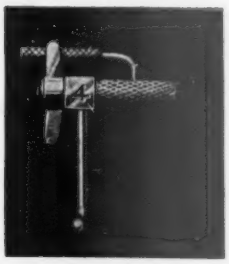

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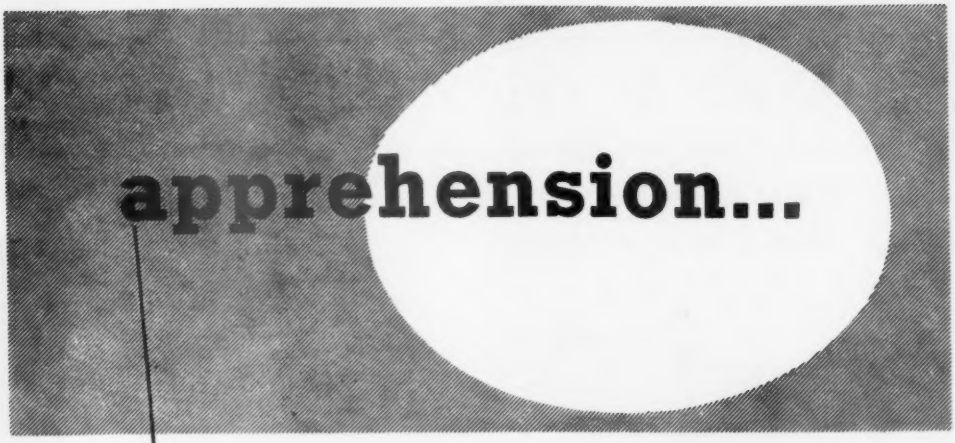

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